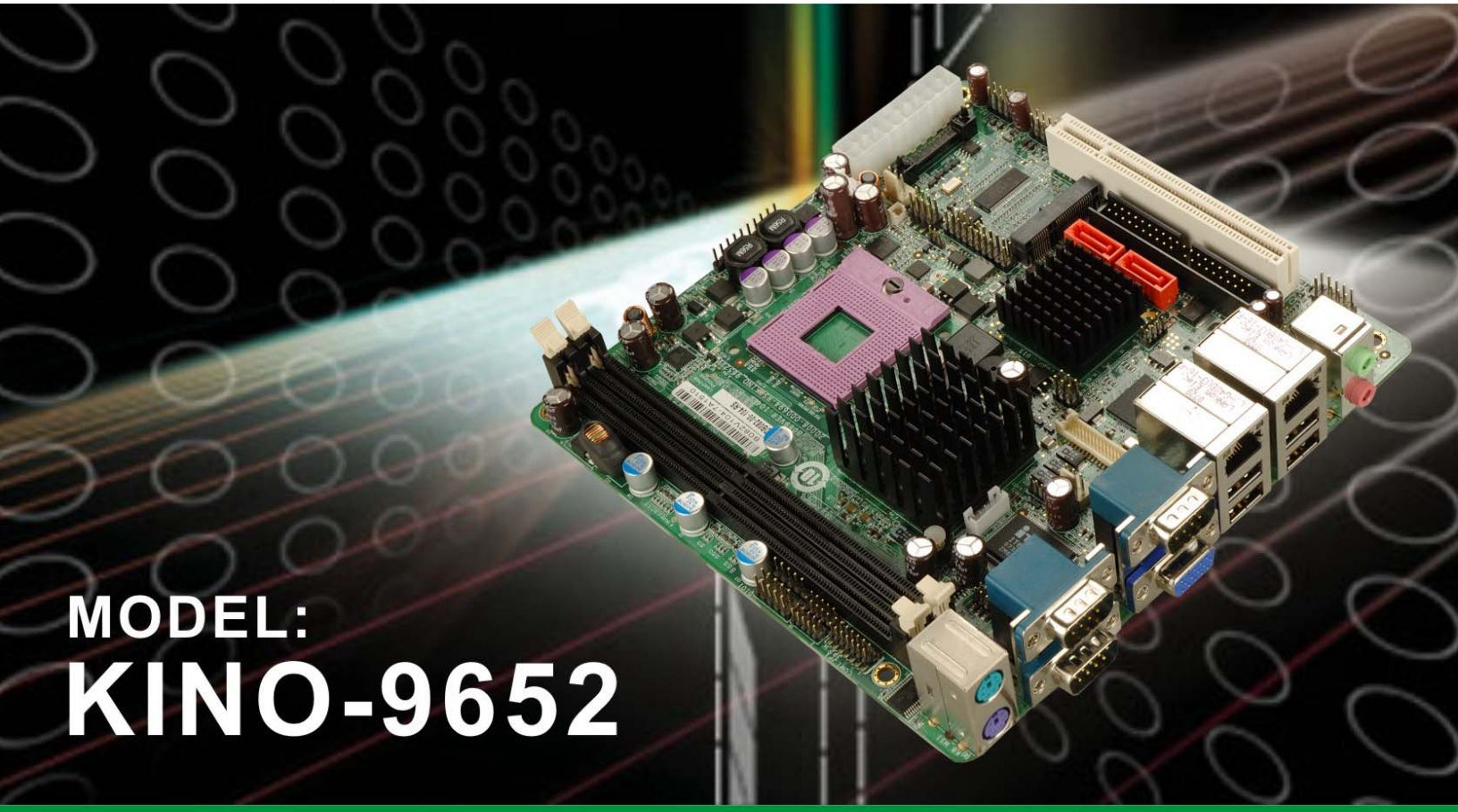
IEI Technology Corp.



MODEL:

KINO-9652

Mini-ITX Motherboard with Intel® Core™2 Duo CPU VGA/LVDS/HDTV, Dual PCIe GbE, USB 2.0 SATA II, HD Audio

User Manual

Rev. 1.00 NOVEMBER 2007

RoHS Lead Free

Revision

Date	Version	Changes
2007-11	1.00	Initial Release

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Manual Conventions

WARNING!

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously. Warnings are easy to recognize. The word “warning” is written as “**WARNING**,” both capitalized and bold and is followed by text. The text is the warning message. A warning message is shown below:

WARNING:

This is an example of a warning message. Failure to adhere to warning messages may result in permanent damage to the KINO-9652 or personal injury to the user. Please take warning messages seriously.

CAUTION!

Cautionary messages should also be heeded to help reduce the chance of losing data or damaging the KINO-9652. Cautions are easy to recognize. The word “caution” is written as “**CAUTION**,” both capitalized and bold and is followed. The italicized text is the cautionary message. A caution message is shown below:

CAUTION:

This is an example of a caution message. Failure to adhere to cautions messages may result in permanent damage to the KINO-9652. Please take caution messages seriously.

NOTE:

These messages inform the reader of essential but non-critical information. These messages should be read carefully as any directions or instructions contained therein can help avoid making mistakes. Notes are easy to recognize. The word “note” is written as “**NOTE**,” both capitalized and bold and is followed by text. The text is the cautionary message. A note message is shown below:

NOTE:

This is an example of a note message. Notes should always be read. Notes contain critical information about the KINO-9652. Please take note messages seriously.

Packing List

NOTE:

If any of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the KINO-9652 from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

The items listed below should all be included in the KINO-9652 package.

- 1 x KINO-9652 single board computer
- 1 x IDE flat cable
- 2 x SATA cable
- 1 x SATA power cable
- 1 x RS-232/422/485 cable
- 1 x I/O shielding
- 1 x Mini jumper pack
- 1 x Utility CD
- 1 x Quick installation guide

Images of the above items are shown in **Chapter 3**.

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Chapter

1

Introduction

1.1 KINO-9652 Overview

Figure 1-1: KINO-9652 Embedded SBC

The KINO-9652 Mini-ITX form factor motherboard is a Socket P Intel® Core™2 Duo CPU platform. The KINO-9652 has a maximum front side bus (FSB) frequency of 800 MHz and comes with a VGA interface and dual PCI Express (PCIe) Gigabit Ethernet (GbE). The KINO-9652 supports up to two, second-generation serial ATA (SATA) hard disk drives (HDD) with maximum transfer rates of 3 Gbps and up to eight USB 2.0 devices. The KINO-9652 also has a PCIe mini card socket and a PCI socket for system expansion. Multiple display support adds versatility to the system enabling system integrators and designers increased flexibility in selecting display panel options. Support for a trusted platform module (TPM) provides additional system security during system boot-up.

1.1.1 KINO-9652 Features

Some of the KINO-9652 features are listed below:

- Complies with RoHS
- Supports Socket P Intel® Core™2 Duo processor
- Supports a maximum FSB speed up to 800 MHz
- Supports two 240-pin 2 GB (max.) 533/667 MHz DDR2 SDRAM DIMM
- Dual PCIe GbE connectors
- Supports two SATA II channels with transfer rates up to 3.0 Gbps
- Supports eight USB 2.0 devices

- Supports HDTV-Out, 24-bit dual channels LVDS and CRT
- Supports Intel® Active Management Technology (AMT) 2.5

1.2 KINO-9652 Board Overview

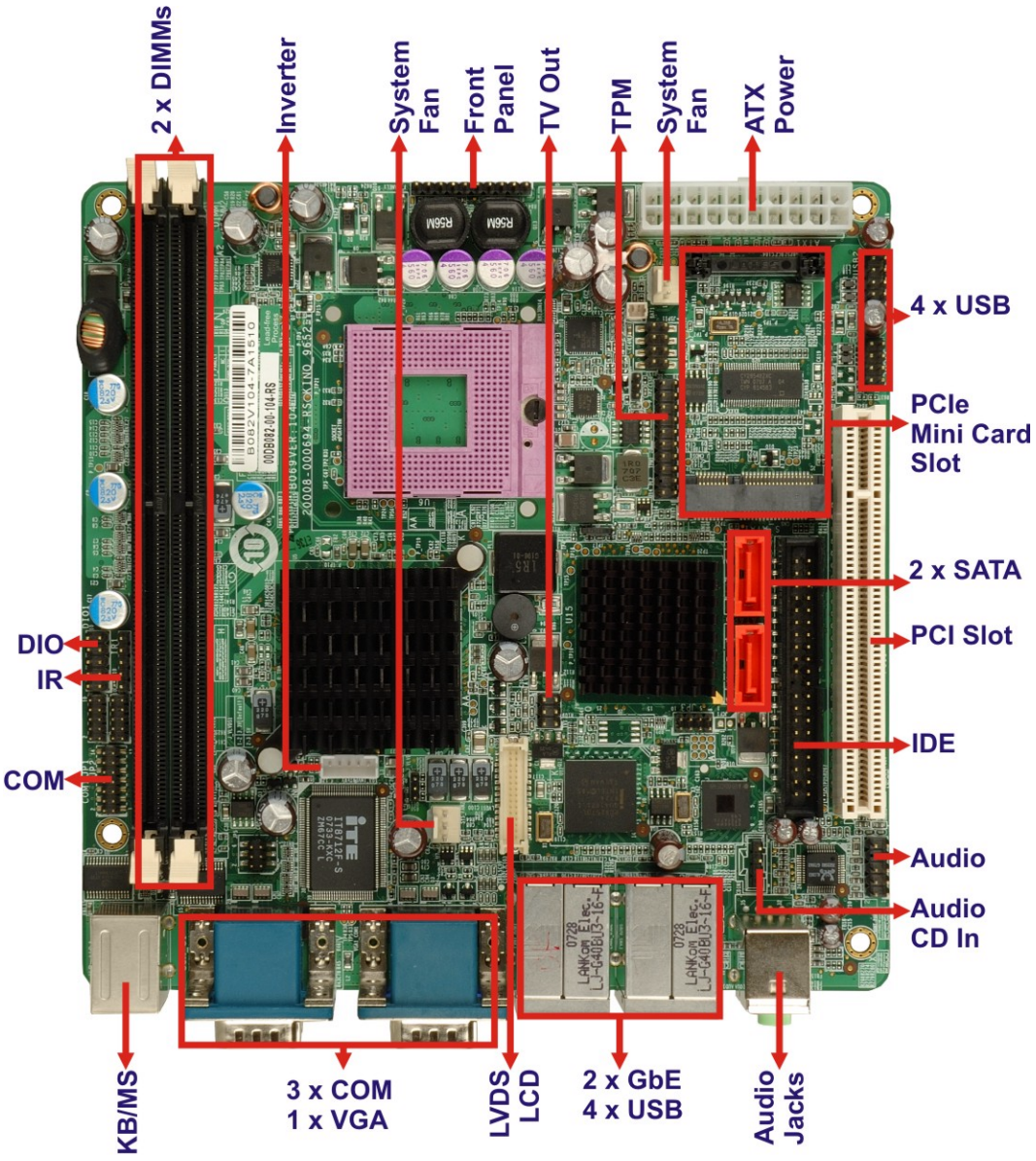

Figure 1-2: KINO-9652 Board Overview

1.2.1 KINO-9652 Connectors

The KINO-9652 has the following connectors on-board:

- 1 x ATX power connector
- 1 x CD in connector
- 1 x CompactFlash® card slot (optional)
- 2 x DDR2 DIMM sockets
- 1 x Digital I/O connector
- 2 x Fan connectors
- 1 x Front panel audio connector
- 1 x Front panel connector
- 1 x IDE Interface connector
- 1 x LCD backlight connector
- 1 x LVDS LCD connector
- 1 x PCIe mini card slot
- 1 x PCI connector
- 1 x Serial port connector
- 2 x SATA II connectors
- 1 x TPM connector
- 1 x TV out connector
- 2 x USB connectors

The KINO-9652 has the following connectors on the board rear panel:

- 2 x Audio jacks
- 1 x CRT connector
- 2 x Ethernet connectors
- 2 x Keyboard/Mouse connectors
- 3 x Serial port connectors
- 4 x USB 2.0 ports

The KINO-9652 has the following on-board jumpers:

- Clear CMOS
- COM 1 and COM 2 port RI and voltage selection

- COM 3 and COM 4 port RI and voltage selection
- LCD voltage selection
- LVDS panel resolution selection

The location of these connectors on the motherboard can be seen in **Figure 1-1**. These connectors are fully described in **Chapter 3**.

1.2.2 Technical Specifications

KINO-9652 technical specifications are listed in **Table 1-1**. Detailed descriptions of each specification can be found in **Chapter 2**.

SPECIFICATION	KINO-9652
Form Factor	Mini-ITX
CPUs Supported	Socket P Intel® Core™2 Duo with 533/667/800 MHz FSB
Chipsets	Northbridge: Intel® GM965 Southbridge: Intel® ICH8ME
Graphics Support	Intel® Graphics Media Accelerator (GMA) X3100
Display	**CRT** **HDTV:** • Up to 1080i component output • Composite output for NTSC/PAL **LVDS:** Dual channel 24-bit LVDS
Memory	Two 240-pin 2 GB (max.) 533/667 MHz dual-channel DDR2 SDRAM DIMM (maximum system memory of 4 GB)
Super I/O	iTE IT8712
Serial ATA (SATA)	Two SATA II connectors with 3.0 Gbps transfer rates
HDD Interface	One IDE channel supports two Ultra ATA 100/66/33 devices
USB Interfaces	Eight USB 2.0 devices supported (four internal and four external)

Serial Ports	Three RS-232 (DB-9 connectors) One RS-232/422/485 (14-pin header connector)
Keyboard/Mouse	Two PS/2 keyboard/mouse connectors
Infrared	One IrDA connector through the iTE IT8712F super I/O. Supports: • Serial Infrared (SIR) • Amplitude Shift Keyed IR (ASKIR)
Extension	One PCI slot One PCIe mini card slot
Digital I/O	8-bit digital I/O, 4 input / 4 output by super I/O
Audio	RealTek ALC883 with 7.1 channel HD audio interface
Ethernet	Intel® 82573L PCIe GbE controller Intel® 82566MM PCIe GbE controller
TPM	Supports TPM v1.2 with 20-pin onboard pin-header
BIOS	AMI BIOS Label
Power	ATX power
Power Consumption	5V@2.5A, +12V@1.65A and 5VSB@0.01A (2.0GHz Intel® Core™2 Duo T7300 with a 800 MHz FSB and a 533 MHz 512MB DDR2 DIMM)
Operating Temperature	Minimum: 0ºC (32°F) Maximum: 60°C (140°F)
Humidity	5%~95% non condensing
Physical Dimensions	170 mm x 170 mm (width x length)
Weight (GW/NW)	1000 g/362 g

Table 1-1: Technical Specifications

Chapter

2

Detailed Specifications

2.1 Overview

This chapter describes the specifications and on-board features of the KINO-9652 in detail.

2.2 Dimensions

2.2.1 Board Dimensions

The dimensions of the board are listed below:

- **Length**: 170mm
- **Width**: 170mm

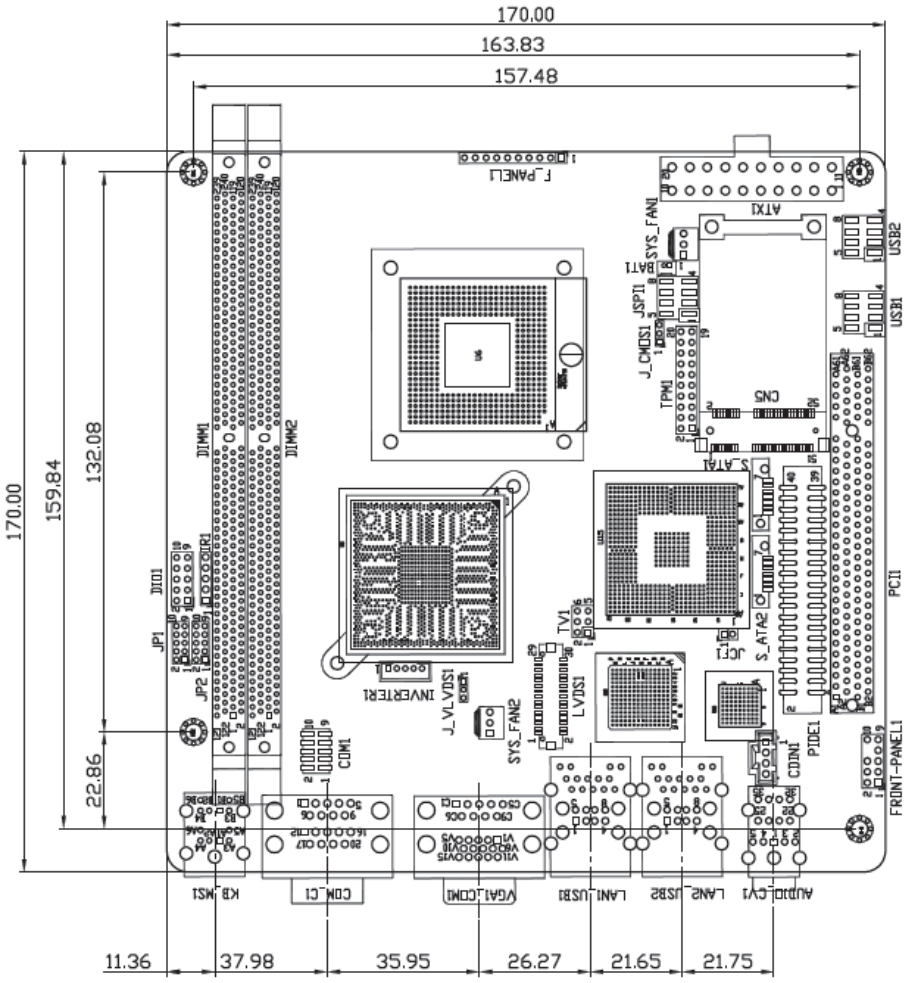

Figure 2-1: KINO-9652 Dimensions (mm)

2.2.2 External Interface Panel Dimensions

External peripheral interface connector panel dimensions are shown in **Figure 2-2**.

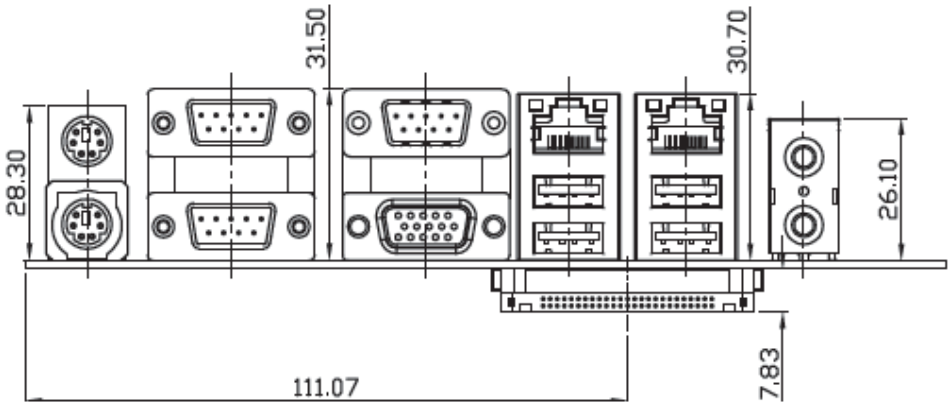

Figure 2-2: External Interface Panel Dimensions (mm)

2.3 Data Flow

The KINO-9652 motherboard comes with an Intel® GM965 GMCH and an Intel® ICH8ME I/O Controller Hub. **Figure 2-3** shows the data flow between the system chipset, the CPU and other components installed on the motherboard.

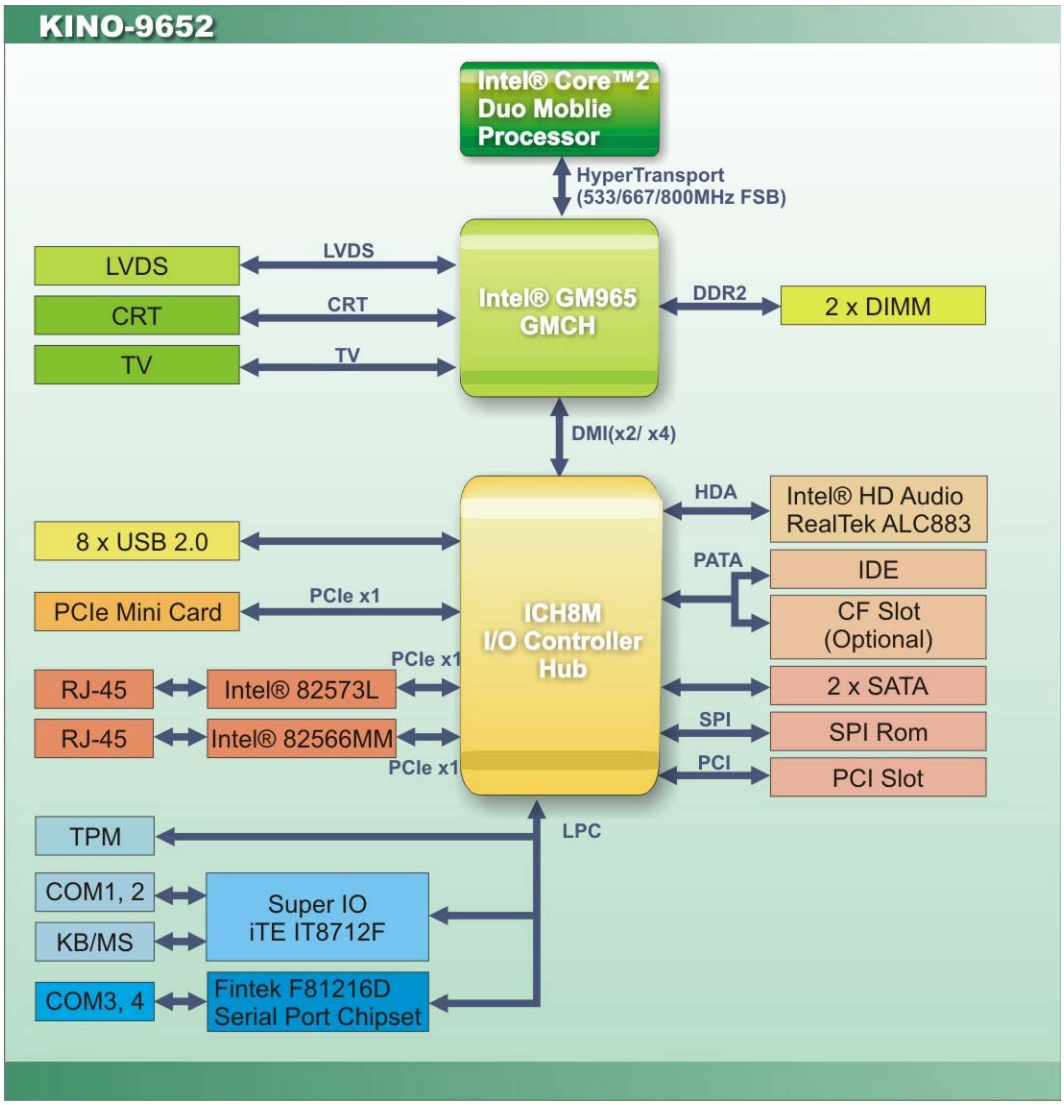

Figure 2-3: Data Flow Block Diagram

2.4 Compatible Processors

Table 2-1 lists the Merom core Intel® Core™2 Duo processors supported on the KINO-9652. All the processors in **Table 2-1** are 65nm Socket P processors with the following features:

- Enhance Intel® Speedstep® Technology
- Enhanced deep C4 sleep state
- Intel® 64
- Intel® Advanced Smart Cache

- Intel® Smart Memory Access
- Intel® Dual Core Technology

Processor #	CPU Speed	FSB Speed	Cache Size
T5250	1.50 GHz	667 MHz	2 MB
T5270	1.40 GHz	800 MHz	2 MB
T5450	1.66 GHz	667 MHz	2 MB
T5470	1.60 GHz	800 MHz	2 MB
T7100	1.80 GHz	800 MHz	2 MB
T7250	2.0 GHz	800 MHz	2 MB
T7300	2.0 GHz	800 MHz	4 MB
T7500	2.22 GHz	800 MHz	4 MB
T7700	2.40 GHz	800 MHz	4 MB
T7500	2.22 GHz	800 MHz	4 MB
T7800	2.60 GHz	800 MHz	4 MB

Table 2-1: Supported Intel® Core™2 Duo (Merom) Processors

2.5 Intel® GM965 Graphics and Memory Controller Hub

2.5.1 Intel® GM965 Overview

The Intel® GM965 GMCH has the Intel® Graphics Media Accelerator X3100 (Intel® GMA 3100) to support integrated graphics. The integrated graphics and memory controller hub (GMCH) facilitates the flow of information primarily between the following four interfaces:

- Front Side Bus (FSB)
- System Memory Interface
- Graphics Interface
- Direct Media Interface (DMI)

2.5.2 Intel® GM965 Front Side Bus (FSB) Support

The Intel® GM965 GMCH supports processors with the following FSB speeds:

- 533 MHz
- 667 MHz
- 800 MHz

The Socket P, Intel® GM965 GMCH and the FSB are shown in **Figure 2-4**.

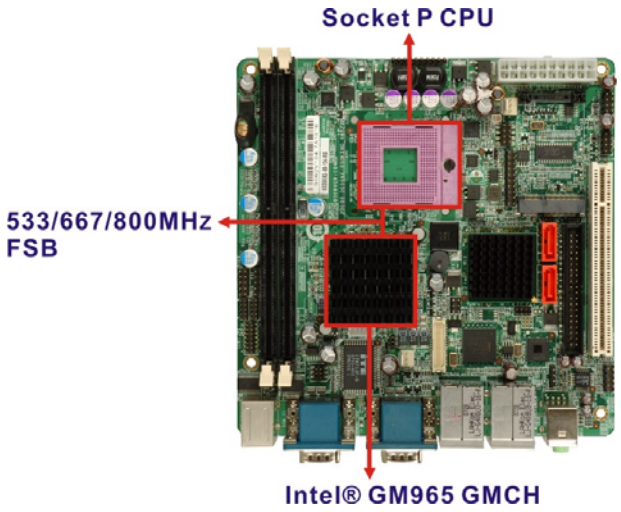

Figure 2-4: Front Side Bus (FSB)

2.5.3 Intel® GM965 Memory Support

WARNING:

Only DDR2 memory module can be installed on the KINO-9652. Do not install DDR memory modules. If a DDR memory module is installed on the KINO-9652, the KINO-9652 may be irreparably damaged.

CAUTION:

The **DIMM1** socket must be installed with one DDR2 DIMM to enable the KINO-9652 to boot-up properly.

The Intel® GM965 GMCH on the KINO-9652 supports two 240-pin DDR2 DIMMs with the following features:

- Two 240-pin DIMMs
- DDR2 only (**DO NOT** install a DDR DIMM)
- Single-channel or dual-channel
- Capacities of 256MB, 512MB or 1GB
- Transfer speeds of 533 MHz or 667 MHz
- 64-bit wide channel

The memory sockets are shown in **Figure 2-5**.

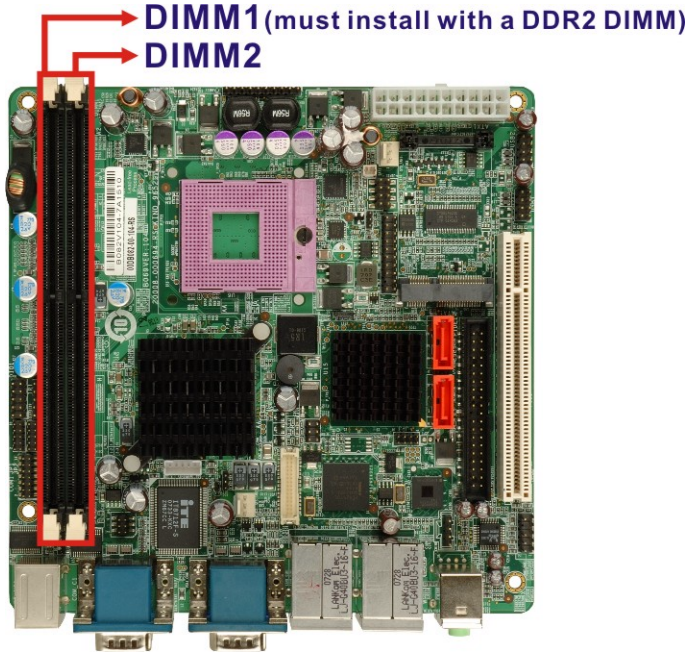

Figure 2-5: 240-pin DDR2 DIMM Sockets

2.5.4 Intel® GM965 Integrated Graphics

The Intel® GM965 GMCH has an mobile Intel® Graphics Media Accelerator X3100 integrated graphics engine that supports the following display devices:

- Analog CRT
- LVDS
- Analog TV-Out

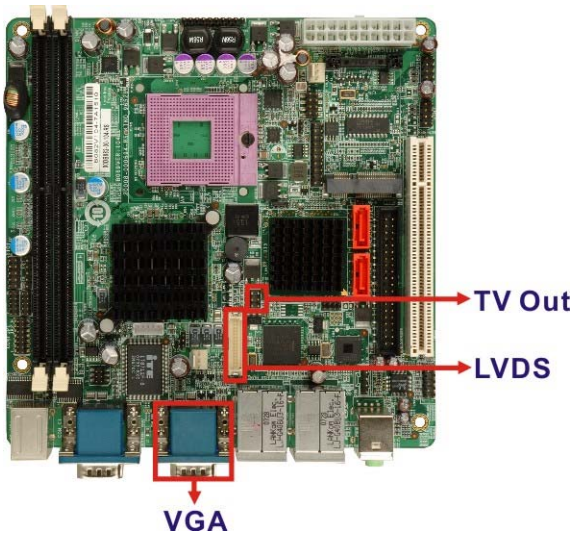

Figure 2-6: Integrated Graphics Interfaces

2.5.4.1 Intel® GM965 Analog CRT Support

A DB-15 VGA connector on the external peripheral interface connector panel is interfaced to the Intel® GM965 graphics engine. The Intel® GM965 internal graphics engine, with an integrated 300 MHz RAMDAC and hot plug CRT support, supports analog CRT monitors up to QXGA.

2.5.4.2 Intel® GM965 LVDS Support

A 30-pin LVDS crimp connector is interfaced to the Intel® GM965 graphics engine. The Intel® GM965 internal graphics engine supports LVDS displays with the following features:

- 18-bit/24-bit 25 MHz to 112 MHz single-channel or dual-channel LVDS

screens

- TFT panel type supported
- Panel Fitting, Panning and Center mode supported
- SPWG v3.5 specification compliant

2.5.4.3 Intel® GM965 TV Out Support

An internal 6-pin header TV output connector is interfaced to the Intel® GM965 graphics engine. The Intel® GM965 internal graphics engine has the following TV output features:

- Three integrated 10-bit DACs
- Macrovision support
- Overscaling
- NTSC and PAL formats supported
- Supports Component, S-Video, TV D connector or Composite output connectivity
- Supports with the following resolutions:
  - SDTV 480i
  - EDTV 480p
  - HDTV 720p, 1080i
  - True HDTV 1080p

2.5.5 Intel® GM965 Direct Management Interface (DMI)

The Direct Media Interface (DMI) is the communication bus between the Intel® GM965 GMCH and the ICH8ME I/O controller hub (ICH). The DMI is a high-speed interface that integrates advanced priority-based servicing and allows for concurrent traffic and true isochronous transfer capabilities. The DMI is shown in **Figure 2-7**.

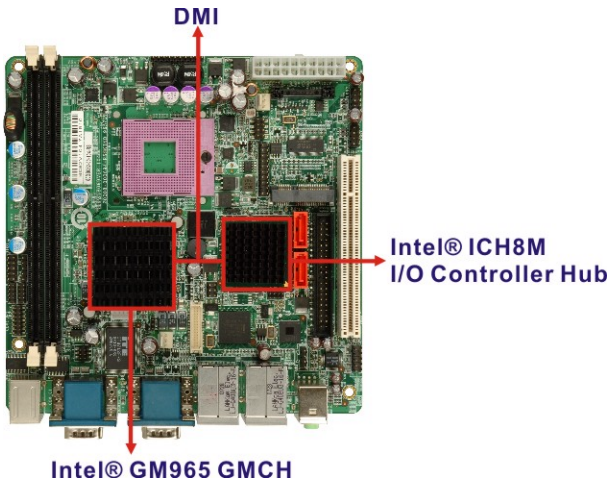

Figure 2-7: DMI Chip-to-Chip Connection

Features of the Intel® GM965 DMI are listed below:

- 2GB/s (1GB/s in each direction) bus speed
- Configurable as x2 or x4 DMI lanes
- 32-bit downstream address

2.6 Intel® ICH8ME I/O Controller Hub

2.6.1 Intel® ICH8ME Overview

The Intel® ICH8ME I/O Controller Hub (ICH) is connected to the Intel® GM965 GMCH through the chip-to-chip Direct Media Interface (DMI). Some of the features of the Intel® ICH8ME are listed below.

- Complies with PCI Express Base Specification, Revision 1.1
- Complies with PCI Local Bus Specification, Revision 2.3 and supports 33 MHz PCI operations
- Supports ACPI Power Management Logic
- Contains:
  - Enhanced DMA controller
  - Interrupt controller
  - Timer functions
- Integrated SATA host controller with DMA operations interfaced to two SATA connectors on the KINO-9652

- Supports the eight USB 2.0 devices on the KINO-9652 with four UHCI controllers and one EHCI controller
- Complies with System Management Bus (SMBus) Specification, Version 2.0
- Supports Intel® High Definition Audio
- Contains Low Pin Count (LPC) interface
- Supports Firmware Hub (FWH) interface
- Serial Peripheral Interface (SPI) support

2.6.2 Intel® ICH8ME HD Audio Controller

The HD Audio controller integrated into the ICH8ME complies with the Intel High Definition Audio specification.

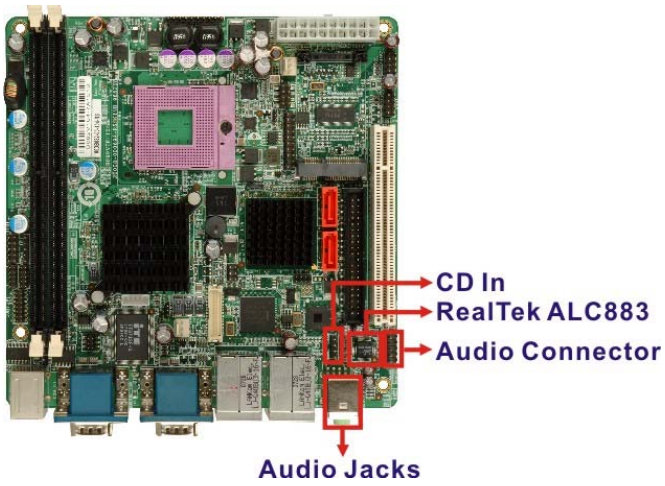

Figure 2-8: HD Audio Codec

The HD audio controller is connected to the external peripheral interface controllers through the integrated ALC883 HD Audio Codec. High Definition Audio supports up to eight audio channels at 192 KHz/32-bit quality and dual channel audio, allowing two different audio streams simultaneously. Features include:

- 7.1 channel high definition audio
- 8 channels at 192 KHz/32-bit quality
- Dual channel audio
- Automatic jack retasking

2.6.3 Intel® ICH8ME Ethernet Controller

The Intel® ICH8ME integrated GbE controller is interfaced to an Intel® 82566MM Gigabit LAN connect device through the Gigabit LAN Connect Interface (GLCI). The GLCI is shared with the PCIe x1 port 6. The Intel® 82566MM connects the Intel® ICH8ME integrated GbE controller to an external RJ-45 Ethernet LAN connector to provide GbE access.

NOTE:

To enable the Intel® ICH8ME GbE Wake-on LAN function, the Wake-on LAN function must be enabled in the BIOS. Please refer to **Section 6.5.1** (the **BIOS Menu 19**menu) on **page 137**.

Some of the features of the Intel® ICH8ME GbE controller are listed below.

- Supports multi speeds including 10 Mbps, 100 Mbps and 1000 Mbps
- Can operate in full-duplex mode at all supported speeds
- Can operate at half-duplex at 10 Mbps and 100 Mbps
- Adheres to the IEEE 802.3x Flow Control Specification.
- Configurable LED operation for customization of LED display.
- 64-bit address master support for system using more than 4 GB of physical memory.
- Configurable receive and transmit data FIFO, programmable in 1 KB increments.
- Intelligent interrupt generation to enhance driver performance.
- Compliance with Advanced Configuration and Power Interface
- Compliance with PCI Power Management standards.
- ACPI register set and power down functionality supporting D0 & D3 states.
- Full wake-up support (ACPI).

- Magic Packet wake-up enable with unique MAC address.
- Fragmented UDP checksum off load for package reassembly.

2.6.3.1 Intel® 82566MM Gigabit LAN Connect Device

One of the external RJ-45 Ethernet LAN connectors is interfaced to an Intel® 82566MM Gigabit LAN connect device. The Intel® 82566MM is a compact, single-port integrated physical layer (PHY) device interfaced directly to the Intel® ICH8ME Ethernet controller through the GLCI. The Intel® ICH8ME Ethernet controller has its own Media Access Controller (MAC). The Intel® 82566MM Gigabit LAN connect device is shown in **Figure 2-9**.

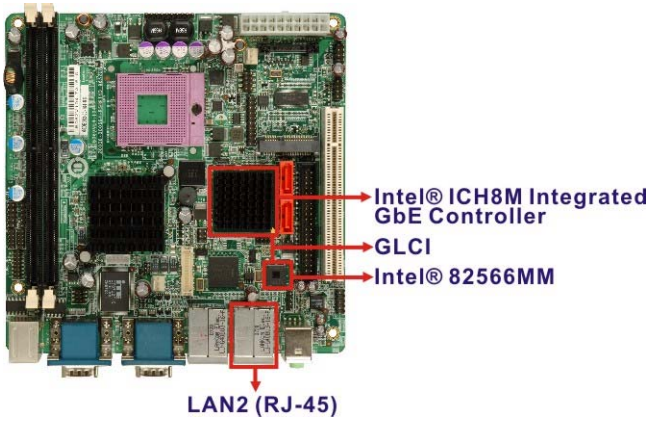

Figure 2-9: Intel® 82566MM Gigabit LAN Connect Device

2.6.4 Intel® ICH8ME IDE Interface

The integrated IDE interface on the ICH8ME supports two IDE hard disks and ATAPI devices. PIO IDE transfers up to 16 MB/s and Ultra ATA transfers of 100MB/s. The integrated IDE interface is able to support the following IDE HDDs:

- **Ultra ATA/100**, with data transfer rates up to 100 MB/s
- **Ultra ATA/66**, with data transfer rates up to 66 MB/s
- **Ultra ATA/33**, with data transfer rates up to 33 MB/s

Specification	Ultra ATA/100	Ultra ATA/66	Ultra ATA/33
IDE devices	2	2	2

Specification	Ultra ATA/100	Ultra ATA/66	Ultra ATA/33
PIO Mode	0 – 4	0 – 4	0 – 4
PIO Max Transfer Rate	16.6 MB/s	16.6 MB/s	16.6 MB/s
DMA/UDMA designation	UDMA 3 - 4	UDMA 3 – 4	UDMA 2
DMA/UDMA Max Transfer	100 MB/s	66 MB/s	33 MB/s
Controller Interface	5V	5V	5V

Table 2-2: Supported HDD Specifications

2.6.5 Intel® ICH8ME Low Pin Count (LPC) Interface

The ICH8ME LPC interface complies with the LPC 1.1 specifications. The LPC bus from the ICH7 is connected to the following components:

- Super I/O chipset
- Trusted Platform Module (TPM) connector

2.6.6 Intel® ICH8ME PCI Interface

The PCI interface on the ICH8ME is compliant with the PCI Revision 2.3 implementation. Some of the features of the PCI interface are listed below.

- PCI Revision 2.3 compliant
- 33 MHz
- 5V tolerant PCI signals (except PME#)
- Integrated PCI arbiter supports up to seven PCI bus masters

The PCI bus is interfaced to one PCI slot of the KINO-9652 and supports one expansion PCI card.

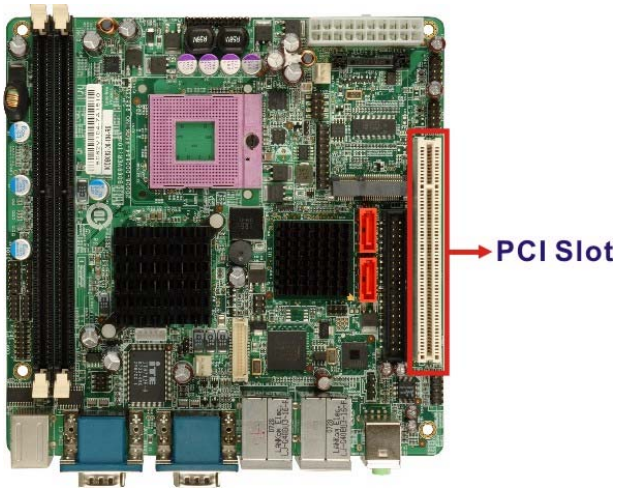

Figure 2-10: PCI Slot

2.6.7 Intel® ICH8ME PCIe x1 Bus

The Intel® ICH8ME GMCH has six PCIe x1 lanes. Three of the six PCIe lanes are implemented on the KINO-9652, including:

- One PCIe x1 lanes is interfaced to an PCIe mini card slot
- One PCIe x1 lanes is connected to an Intel® 82566MM GbE controller
- One PCIe x1 lane is connected to an Intel® 82573L GbE controller.

For more detailed information, please refer to **Section 2.7**.

2.6.8 Intel® ICH8ME Real Time Clock

256 bytes of battery backed RAM is provided by the Motorola MC146818A real time clock (RTC) integrated into the ICH8ME. The RTC operates on a 3V battery and 32.768KHz crystal. The RTC keeps track of the time and stores system data even when the system is turned off.

2.6.9 Intel® ICH8ME SATA Controller

The integrated SATA controller on the ICH8ME supports two SATA II drives on the KINO-9652 with independent DMA operations. SATA controller specifications are listed below.

- Supports two SATA II drives
- Supports 3 Gbps data transfer speeds
- Supports Serial ATA Specification, Revision 1.0a

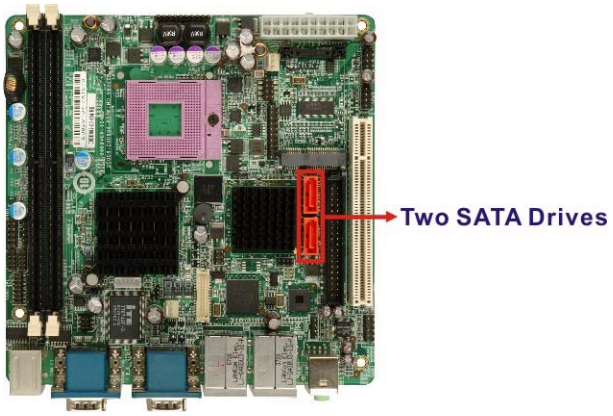

Figure 2-11: SATA Drive Connectors

2.6.10 Intel® ICH8ME Serial Peripheral Interface (SPI) BIOS

The 4-pin SPI is connected to an SPI BIOS chip. A licensed copy of AMI BIOS is preinstalled on the SPI BIOS chip. A master-slave protocol is used for communication on the SPI bus. The slave is connected to the Intel® ICH8ME and is implemented as a tri-state bus.

2.6.11 Intel® ICH8ME USB Controller

Up to eight high-speed, full-speed or low-speed USB devices are supported by the ICH8ME on the KINO-9652. High-speed USB 2.0, with data transfers of up to 480MB/s, is enabled with the ICH8ME integrated Enhanced Host Controller Interface (EHCI) compliant host controller. USB full-speed and low-speed signaling is supported by the ICH8ME integrated Universal Host Controller Interface (UHCI) controllers.

The eight USB ports implemented on the KINO-9652 are connected to four internal connectors and four external connectors. See **Figure 2-12**.

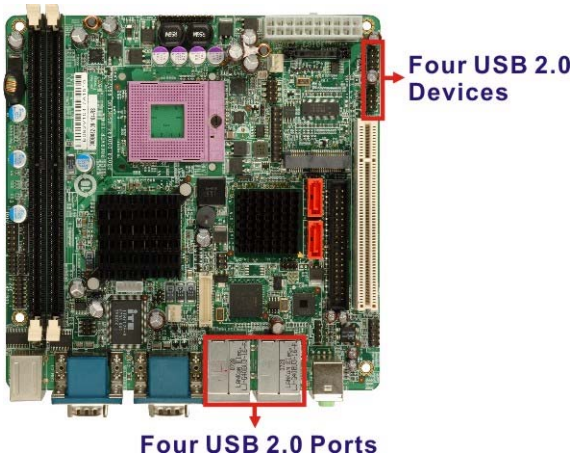

Figure 2-12: Onboard USB Implementation

2.7 PCIe Bus Components

2.7.1 PCIe Bus Overview

The PCIe bus is connected to components listed below:

- One PCIe x 1 lane is connected to one PCIe mini card slot
- One PCIe x1 lane is connected to one Intel® PCIe GbE connector
- One PCIe x1 is shared with the Intel® ICH8ME Gigabit LAN Connect Interface (GLCI), which is connected to a Intel® 82566MM Gigabit platform LAN connect device

2.7.2 PCIe Mini Card Expansion

The ICH8ME has one PCIe x1 port reserved for a PCIe mini card. The PCIe x1 lane is interfaced to a PCIe mini card slot on the KINO-9652. The PCIe x1 mini card is then installed on the PCIe mini card slot on the KINO-9652.

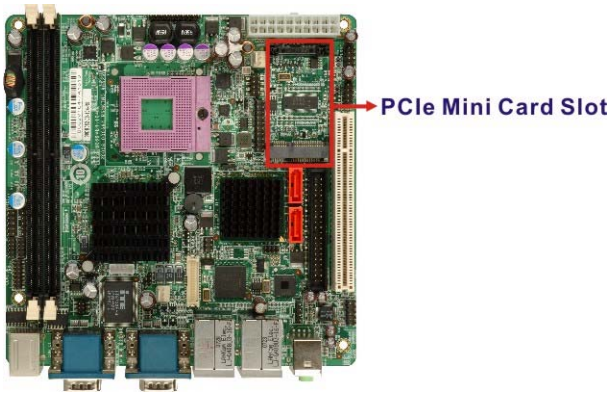

Figure 2-13: PCIe Mini Card Slot

2.7.3 Intel® 82573L PCIe GbE Controller

An RJ-45 Ethernet LAN connector is interfaced directly to an Intel® 82573L PCIe GbE controller. The Intel® 82573L PCIe GbE controller is a compact, single-port integrated physical layer (PHY) device with its own Memory Access Controller (MAC) and interfaced to the Intel® ICH8ME Southbridge through a PCIe x1 lane. The Intel® 82573L GbE controllers is shown in **Figure 2-14** below.

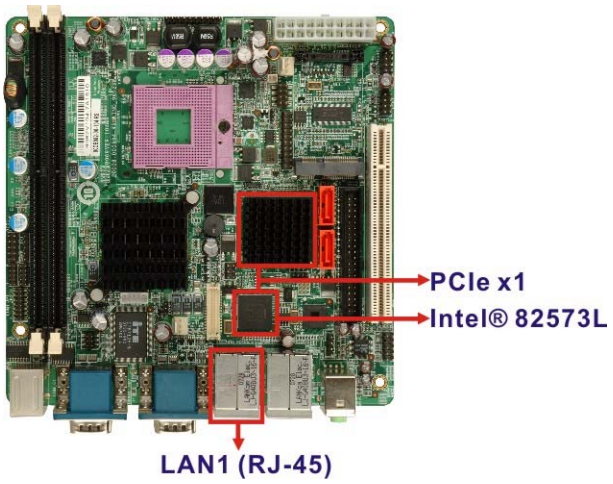

Figure 2-14: Intel® 82573L PCIe GbE Controller

Some of the features of the Intel® 82573L are listed below:

- 2 Gbps peak bandwidth per direction

- PCI Express Rev 1.0a specification
- High bandwidth density per pin
- Wide,pipelined internal data path architecture
- Optimized transmit (Tx) and receive (Rx) queues
- 32 KB configurable Rx and Tx first-in/first-out (FIFO)
- IEEE 802.3x*-compliant flow-control support with software controllable pause times and threshold values
- Programmable host memory Rx buffers (256 B-16 KB)
- Descriptor ring management hardware for Tx and Rx
- Mechanism for reducing interrupts from Tx/Rx operations
- Integrated PHY for 10/100/1000 Mbps (full- and half-duplex)
- IEEE 802.3ab* auto-negotiation support
- IEEE 802.3ab PHY compliance and compatibility
- Tx/Rx IP,TCP,and UDP checksum offloading
- Tx TCP segmentation
- IEEE 802.1q* Virtual Local Area Network (VLAN) support with VLAN tag insertion, stripping, and packet filtering for up to 4096 VLAN tags
- Boot ROM Preboot eXecution Environment (PXE) Flash interface support
- SDG 3.0,WfM 3.0 and PC2001 compliant
- Wake on LAN support

2.8 LPC Bus Components

2.8.1 LPC Bus Overview

The LPC bus is connected to components listed below:

- TPM connector
- Super I/O chipset

2.8.2 TPM Module

A TPM connector on the KINO-9652 is interfaced to the Intel® ICH8ME through the LPC bus. The TPM connector is shown in **Figure 2-15** below.

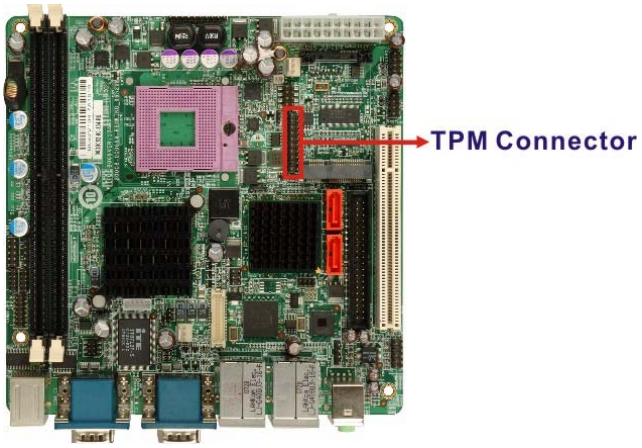

Figure 2-15: TPM Connector

The Intel® ICH8ME supports TPM version 1.1 and TPM version 1.2 devices for enhanced security. Three TPM are available from IEI. The three IEI TPM are listed below:

- Infineon TPM module
- Sinosun TPM module
- Winbond TPM module

For more information about these modules please refer to **Chapter 3** or contact the KINO-9652 reseller or vendor. Alternatively, please contact IEI at sales@iei.com.tw.

2.8.3 Super I/O chipset

The iTE IT8712F Super I/O chipset is connected to the ICH8ME through the LPC bus. iTE IT8712F Super I/O chipset is shown in **Figure 2-16** below.

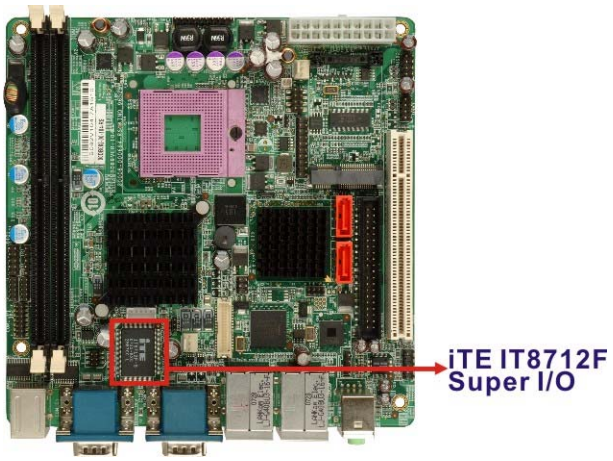

Figure 2-16: iTE IT8712F Super I/O

The iTE IT8712F is an LPC interface-based Super I/O device that comes with Environment Controller integration. Some of the features of the iTE IT8712F chipset are listed below:

- LPC Interface
- PC98/99/2001, ACPI and LANDesk Compliant
- Enhanced Hardware Monitor
- Fan Speed Controller
- SmartGuardian Controller
- Single +5V Power Supply
- Two 16C550 UARTs for serial port control
- Keyboard Controller
- Watchdog Timer
- Serial IRQ Support
- Vbat & Vcch Support
- Single +5V Power Supply

Some of the Super I/O features are described in more detail below:

2.8.3.1 Super I/O LPC Interface

The LPC interface on the Super I/O complies with the Intel® Low Pin Count Specification Rev. 1.0. The LPC interface supports both LDRQ# and SERIRQ protocols as well as PCI PME# interfaces.

2.8.3.2 Super I/O 16C550 UARTs

The onboard Super I/O has two integrated 16C550 UARTs that can support the following:

- Two standard serial ports (COM1 and COM2)
- IrDa 1.0 and ASKIR protocols

Another two chipsets connected to the LPC bus provided connectivity to another two serial port connectors (COM3 and COM4).

2.8.3.3 Super I/O Enhanced Hardware Monitor

The Super I/O Enhanced Hardware Monitor monitors three thermal inputs, VBAT internally, and eight voltage monitor inputs. These hardware parameters are reported in the BIOS and can be read from the BIOS Hardware Health Configuration menu.

2.8.3.4 Super I/O Fan Speed Controller

The Super I/O fan speed controller enables the system to monitor the speed of the fan. One of the pins on the fan connector is reserved for fan speed detection and interfaced to the fan speed controller on the Super I/O. The fan speed is then reported in the BIOS.

2.8.3.5 Super I/O GPIO Ports

The Super I/O has 38 programmable GPIO pins of which 8 are implemented on the KINO-9652. The GPIO connector has 8 programmable bits, 4-bit input and 4-bit output.

2.8.3.6 Super I/O Infrared

The Super I/O has dedicated infrared (IrDA) pins that are interfaced to an IrDA connector. The IrDA connector is compatible with the following standards:

- ASKIR
- SIR

2.8.3.7 Super I/O Keyboard Controller

The Super I/O keyboard controller can execute the 8042 instruction set. Some of the keyboard controller features are listed below:

- The 8042 instruction is compatible with a PS/2 keyboard and PS/2 mouse
- Gate A20 and Keyboard reset output
- Supports multiple keyboard power on events
- Supports mouse double-click and/or mouse move power on events

2.8.4 Fintek F81216DG LPC Serial Port Chipset

The KINO-9652 has a Fintek F81216DG chipset onboard enables the addition of two additional UART serial ports (COM3 and COM4). UART includes 16-byte send/receive FIFO. The Fintek serial port chipset is interfaced to the ICH8ME chipset through the LPC bus. Some of the features of the Fintek chipset are listed below:

- Supports LPC interface
- Totally provides 2 UART (16550 asynchronous) ports
  - 1 x Pure UART
  - 1 x UART+IR
- One Watch dog timer with WDTOUT# signal
- One Frequency input 24/48 MHz
- Powered by 3Vcc

2.9 Environmental and Power Specifications

2.9.1 System Monitoring

Three thermal inputs on the KINO-9652 Super I/O Enhanced Hardware Monitor monitor the following temperatures:

- CPU temperature
- PWM temperature

- System temperature

Eight voltage inputs on the KINO-9652 Super I/O Enhanced Hardware Monitor monitor the following voltages:

- CPU Core
- +1.8V
- +3.30V
- +5.00V
- +12.0V
- +1.05V
- +1.5V
- +1.25V
- VBAT

The KINO-9652 Super I/O Enhanced Hardware Monitor also monitors the following fan speeds:

- CPU Fan speed
- System Fan speed

The values for the above environmental parameters are all recorded in the BIOS Hardware Health Configuration menu.

2.9.2 Operating Temperature and Temperature Control

The maximum and minimum operating temperatures for the KINO-9652 are listed below.

- Minimum Operating Temperature: 0ºC (32°F)
- Maximum Operating Temperature: 60°C (140°F)

A cooling fan and heat sink must be installed on the CPU. Thermal paste must be smeared on the lower side of the heat sink before it is mounted on the CPU. Heat sinks are also mounted on the GMCH and ICH chipsets to ensure the operating temperature of these chips remain low.

2.9.3 Power Consumption

Table 2-3 shows the power consumption parameters for the KINO-9652 running with a 2.0GHz Intel® Core™2 Duo T7300 with a 800 MHz FSB and a 533 MHz 512MB DDR2 DIMM,

Voltage	Current
+5V	2.5A
+12V	1.65A
5V Standby	0.01A

Table 2-3: Power Consumption

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Chapter

3

Unpacking

3.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the KINO-9652 may result in permanent damage to the KINO-9652 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the KINO-9652. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the KINO-9652, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***: Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring the KINO-9652, place it on an antic-static pad. This reduces the possibility of ESD damaging the KINO-9652.
- ***Only handle the edges of the PCB***: When handling the PCB, hold the PCB by the edges.

3.2 Unpacking

3.2.1 Unpacking Precautions

When the KINO-9652 is unpacked, please do the following:

- Follow the anti-static precautions outlined in **Section 3.1**.
- Make sure the packing box is facing upwards so the KINO-9652 does not fall out of the box.
- Make sure all the components shown in **Section 3.3** are present.

3.3 Unpacking Checklist

NOTE:

If some of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the KINO-9652 from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

3.3.1 Package Contents

The KINO-9652 is shipped with the following components:

Quantity	Item and Part Number	Image
1	KINO-9652 SBC	
1	RS-232/422/485 Cable (**P/N**:32200-026500-RS)	
1	IDE cable (**P/N**: 32200-000052-RS)	
2	SATA cables (**P/N**: 32000-0628000-RS)	
1	SATA power cable (**P/N**: 32100-088600-RS)	

1	I/O shielding (**P/N**: 45002-4520C0-00-RS)	
1	Mini jumper pack	
1	Quick Installation Guide	
1	Utility CD	

Table 3-1: Package List Contents

3.3.2 Optional Items

NOTE:

The items listed in this section are optional items that must be ordered separately. Please contact your KINO-9652 vendor, distributor or reseller for more information or, contact iEi directly by sending an email to sales@iei.com.tw.

The following optional items are available for the KINO-9652.

Quantity	Item and Part Number	Image
1	Dual port USB cable (**P/N**: CB-USB02-RS)	
1	HDTV output cable	

Quantity	Item and Part Number	Image
	(**P/N**: 32000-083701-RS)	
1	CPU Cooler (**P/N**: CF-479B-RS)	
1	20-pin SINOSUN TPM module, S/W management tool	
1	20-pin WINBOND TPM module, S/W management tool	
1	20-pin INFINEON TPM module, S/W management tool	

Table 3-2: Optional Items

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Chapter

4

Connectors and Jumpers

4.1 Peripheral Interface Connectors

Section 4.1.1 shows peripheral interface connector locations. **Section 4.1.2** lists all the peripheral interface connectors seen in **Section 4.1.1**.

4.1.1 KINO-9652 Layout

Figure 4-1 shows the on-board peripheral connectors, backplane peripheral connectors and on-board jumpers.

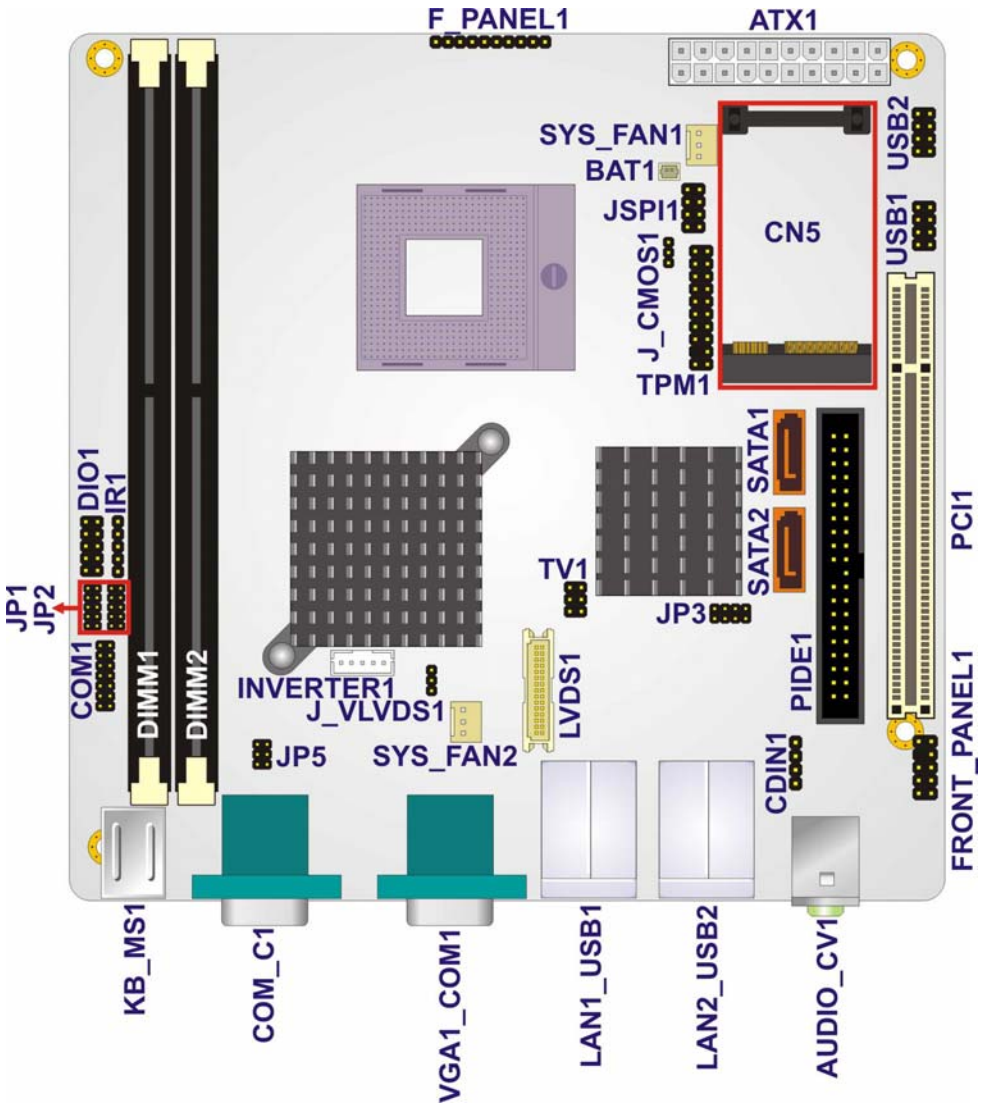


Figure 4-1: Connector and Jumper Locations

4.1.2 Peripheral Interface Connectors

Table 4-1 shows a list of the peripheral interface connectors on the KINO-9652. Detailed descriptions of these connectors can be found in **Section 4.2**.

Connector	Type	Label
Audio connector	10-pin header	FRONT-PANEL1
Audio CD in connector	4-pin header	CDIN1
ATX power connector	20-pin connector	ATX1
CompactFlash® card slot (optional)	50-pin slot	CF1
DDR2 DIMM socket	240-pin slot	DIMM1
DDR2 DIMM socket	240-pin slot	DIMM2
Fan connector (1)	3-pin wafer connector	SYS_FAN1
Fan connector (2)	3-pin wafer connector	SYS_FAN2
SPI Flash ROM connector	8-pin header	JSPI1
Front panel connector	10-pin header	F_PANEL1
Digital Input/Output connector	10-pin header	DIO1
IDE Interface connector	40-pin box header	PIDE1
Infrared interface connector	5-pin header	IR1
LCD backlight connector	5-pin wafer connector	INVERTER1
LVDS LCD connector	30-pin crimp connector	LVDS1
PCIe mini card slot	52-pin slot	CN5
PCI slot	124-pin PCI slot	PCI1
SATA drive connector (1)	7-pin SATA connector	S_ATA1
SATA drive connector (2)	7-pin SATA connector	S_ATA2

Serial port connector	14-pin header	COM1
TPM connector	20-pin header	TPM1
TV out connector	6-pin header	TV1
USB connector (1)	8-pin header	USB1
USB connector (2)	8-pin header	USB2

Table 4-1: Peripheral Interface Connectors

4.1.3 Rear Panel Connectors

Table 4-2 lists the rear panel connectors on the KINO-9652. Detailed descriptions of these connectors can be found in **Section 4.3**.

Connector	Type	Label
Audio Jacks	Audio connector	AUDIO_CV1
CRT connector	15-pin female connector	VGA1_COM1
Ethernet connector (1)	RJ-45 connector	LAN1_USB1
Ethernet connector (2)	RJ-45 connector	LAN2_USB2
Keyboard/Mouse connector	6-pin mini din connector	KB_MS1
Serial port connector	DB-9 male connector	VGA1_COM1
Serial port connectors	DB-9 male connector	COM_C1
USB 2.0 port (1)	USB port connector	LAN1_USB1
USB 2.0 port (2)	USB port connector	LAN2_USB2

Table 4-2: Rear Panel Connectors

4.2 Internal Peripheral Connectors

Internal peripheral connectors are found on the motherboard and are only accessible when the motherboard is outside of the chassis. This section has complete descriptions of all the internal, peripheral connectors on the KINO-9652.

4.2.1 Audio Connector

CN Label: **FRONT-PANEL1**

CN Type: 10-pin header (2x5)

CN Location: See **Figure 4-2**

CN Pinouts: See **Table 4-3**

The front panel audio connector connects the on-board sound system of the KINO-9652 to the audio line out and microphone jacks on the front of the computer chassis.

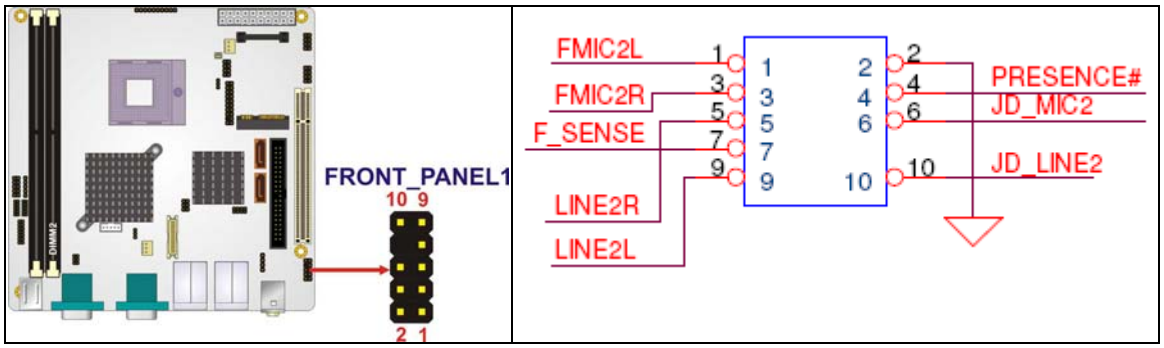


Figure 4-2: Audio Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MIC-L	2	ANALOG GND
3	MIC-R	4	PRESENCE#
5	LINE-R	6	MIC-JD
7	FRONT-IO	8	NC
9	LINE-L	10	INE-JD

Table 4-3: Audio Connector Pinouts

4.2.2 Audio CD In Connector

CN Label: **CDIN1**

CN Type: 4-pin header (1x4)

CN Location: See **Figure 4-3**

CN Pinouts: See **Table 4-4**

The 4-pin audio CD in connector is connected to an external audio CD device for the input and output of audio signals from a CD player to the system.

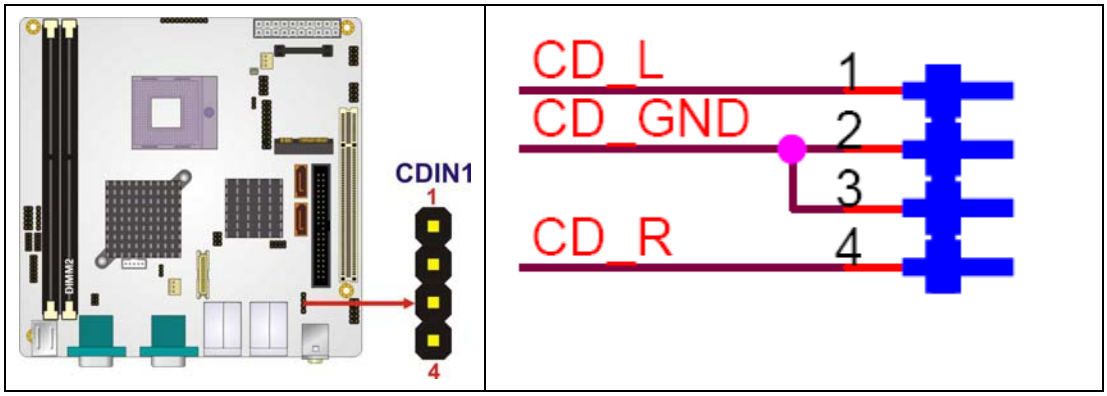


Figure 4-3: Audio CD In Connector Pinouts (4-pin)

PIN NO.	DESCRIPTION
1	CD Signal (Left)
2	Ground
3	Ground
4	CD Signal (Right)

Table 4-4: Audio CD In Connector Pinouts

4.2.3 ATX Power Connector

CN Label: ATX1

CN Type: 20-pin ATX (2x10)

CN Location: See **Figure 4-4**

CN Pinouts: See **Table 4-5**

The ATX connector is connected to an external ATX power supply. Power is provided to the system, from the power supply through this connector.

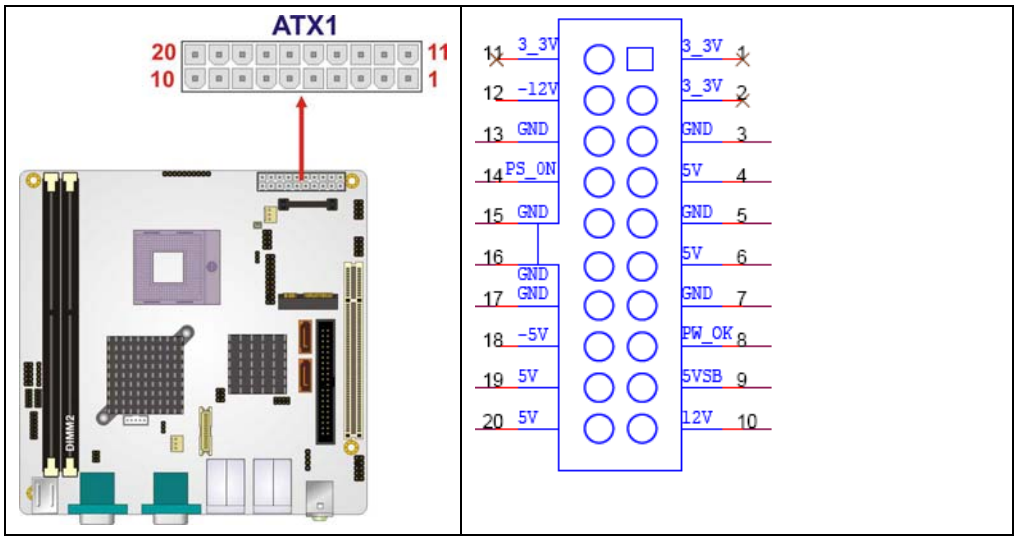


Figure 4-4: ATX Power Connector Pinout Locations

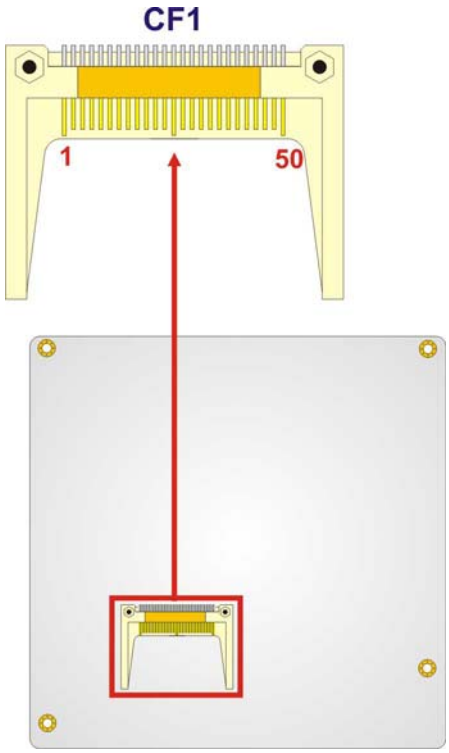
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	PS-ON
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	PW-OK	18	-5V
9	+VCC5SB	19	+5V
10	+12V	20	+5V

Table 4-5: ATX Power Connector Pinouts

4.2.4 CompactFlash® Socket (Optional)

CN Label:	**CF1** (solder side)
CN Type:	50-pin slot (2x25)
CN Location:	See **Figure 4-5**
CN Pinouts:	See **Table 4-6**

A CF Type I or Type II memory card is inserted to the optional CF socket on the solder side of the KINO-9652.



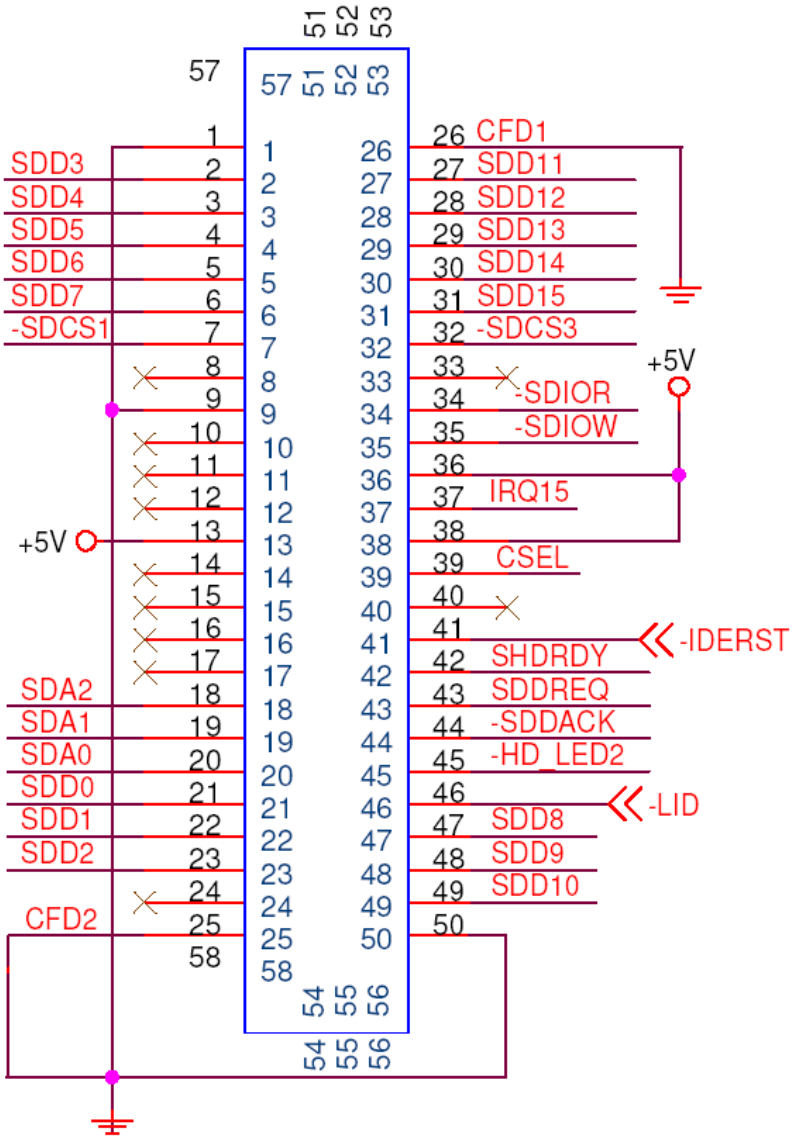


Figure 4-5: CF Card Socket Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	26	VCC-IN CHECK1
2	DATA 3	27	DATA 11
3	DATA 4	28	DATA 12
4	DATA 5	29	DATA 13
5	DATA 6	30	DATA 14

6	DATA 7	31	DATA 15
7	HDC_CS0#	32	HDC_CS1
8	N/C	33	N/C
9	GROUND	34	IOR#
10	N/C	35	IOW#
11	N/C	36	VCC_COM
12	N/C	37	IRQ15
13	VCC_COM	38	VCC_COM
14	N/C	39	CSEL
15	N/C	40	N/C
16	N/C	41	HDD_RESET
17	N/C	42	IORDY
18	SA2	43	SDREQ
19	SA1	44	SDACK#
20	SA0	45	HDD_ACTIVE#
21	DATA 0	46	66DET
22	DATA 1	47	DATA 8
23	DATA 2	48	DATA 9
24	N/C	49	DATA 10
25	VCC-IN CHECK2	50	GROUND

Table 4-6: CF Card Socket Pinouts

4.2.5 Fan Connectors

CN Label: **SYS_FAN1** and **SYS_FAN2**

CN Type: 3-pin wafer connector (1x3)

CN Location: See **Figure 4-6**

CN Pinouts: See **Table 4-7**

The cooling fan connectors on the KINO-9652 provide a 12V, 500mA current to one CPU cooling fan and one system cooling fan. There is a “sense” pin in the fan connector, which

transfers the fan's sense signal to the system BIOS in order to recognize the fan speed. Please note that only some specific types of fans offer a rotation signal.

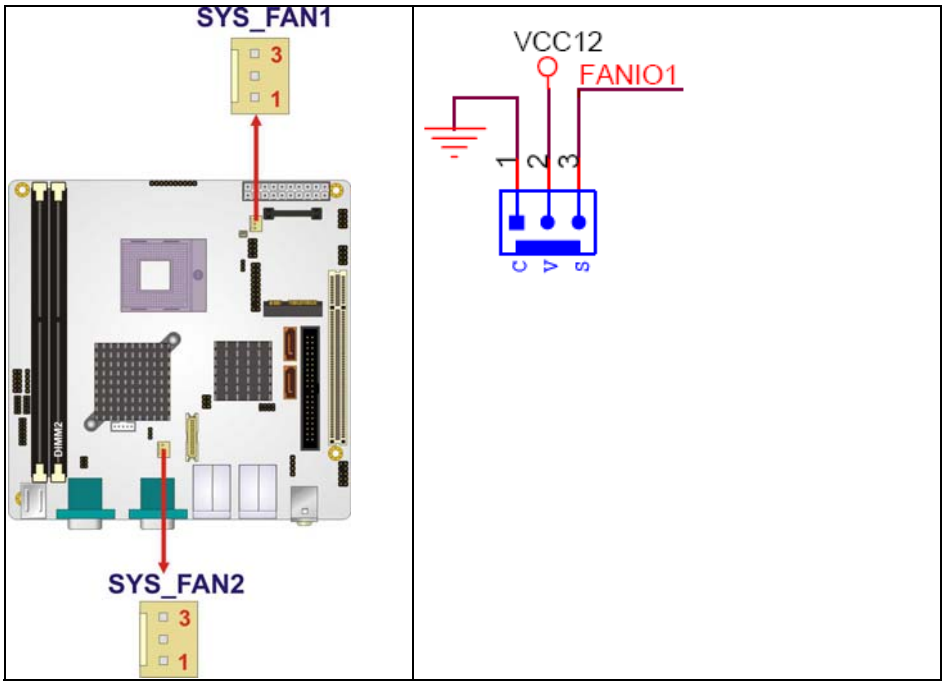


Figure 4-6: Fan Connector Locations

PIN NO.	DESCRIPTION
1	FANIO
2	+12V
3	GND

Table 4-7: Fan Connector Pinouts

4.2.6 Front Panel Connector

CN Label: **F_PANEL1**

CN Type: 10-pin header (1x10)

CN Location: See **Figure 4-7**

CN Pinouts: See **Table 4-8**

The front panel connector connects to several external switches and indicators to monitor and control the motherboard. These indicators and switches include:

- Power
- Power button
- Reset button
- Speaker
- HDD

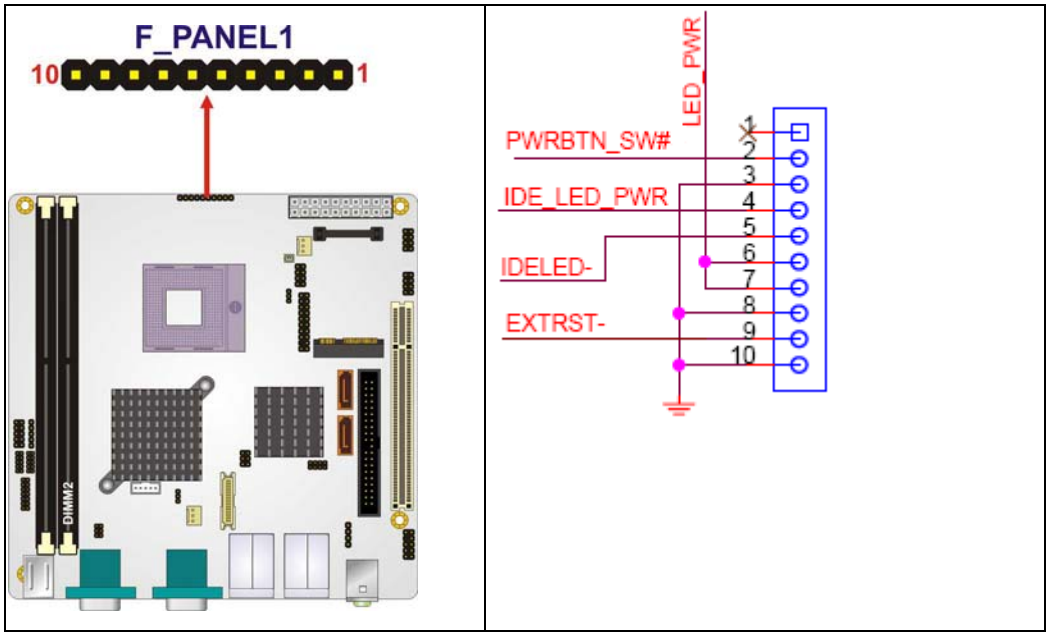


Figure 4-7: Front Panel Connector Location

FUNCTION	PIN	DESCRIPTION	FUNCTION	PIN	DESCRIPTION
	1	NC	Power LED	6	PWR_LED+
Power Button	2	PWR_BTN+		7	PWR_LED+
	3	PWR_BTN-		8	PWR_LED-
HDD LED	4	HDD_LED+	Reset	9	RESET+
	5	HDD_LED-		10	RESET-

Table 4-8: Front Panel Connector Pinouts

4.2.7 Digital Input/Output Connector

CN Label: **DIO1**

CN Type: 10-pin header (2x5)

CN Location: See **Figure 4-8**

CN Pinouts: See **Table 4-9**

The DIO connector is managed through a Super I/O chip. The DIO connector pins are user programmable. The digital IO port of KINO-9652 is 5V CMOS level.

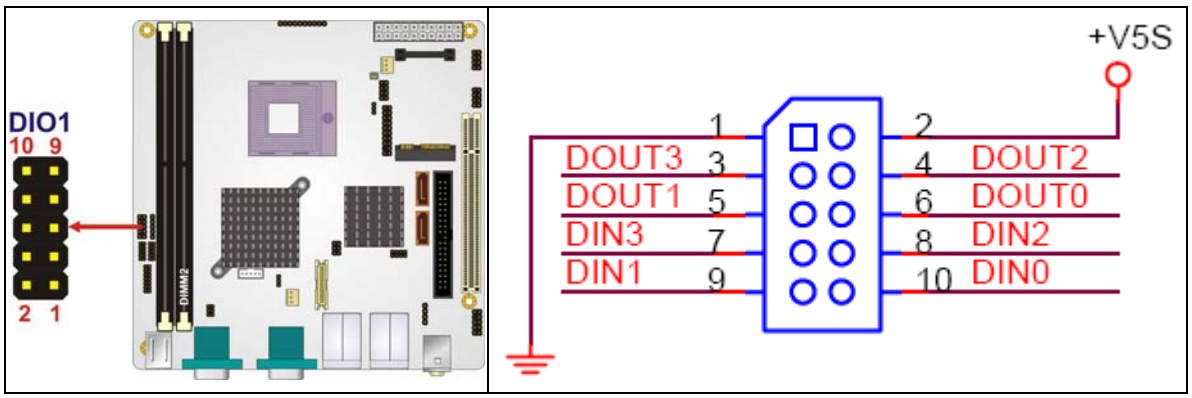


Figure 4-8: GPIO Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	VCC
3	OUTPUT 3	4	OUTPUT 2
5	OUTPUT 1	6	OUTPUT 0
7	INPUT 3	8	INPUT 2
9	INPUT 1	10	INPUT 0

Table 4-9: GPIO Connector Pinouts

4.2.8 IDE Connector

CN Label: **PIDE1**

CN Type: 40-pin box header (2x20)

CN Location: See **Figure 4-9**

CN Pinouts: See **Table 4-10**

One primary 40-pin IDE device connector on the KINO-9652 motherboard supports connectivity to ATA 100/66/33 IDE devices with data transfer rates up to 100MB/s.

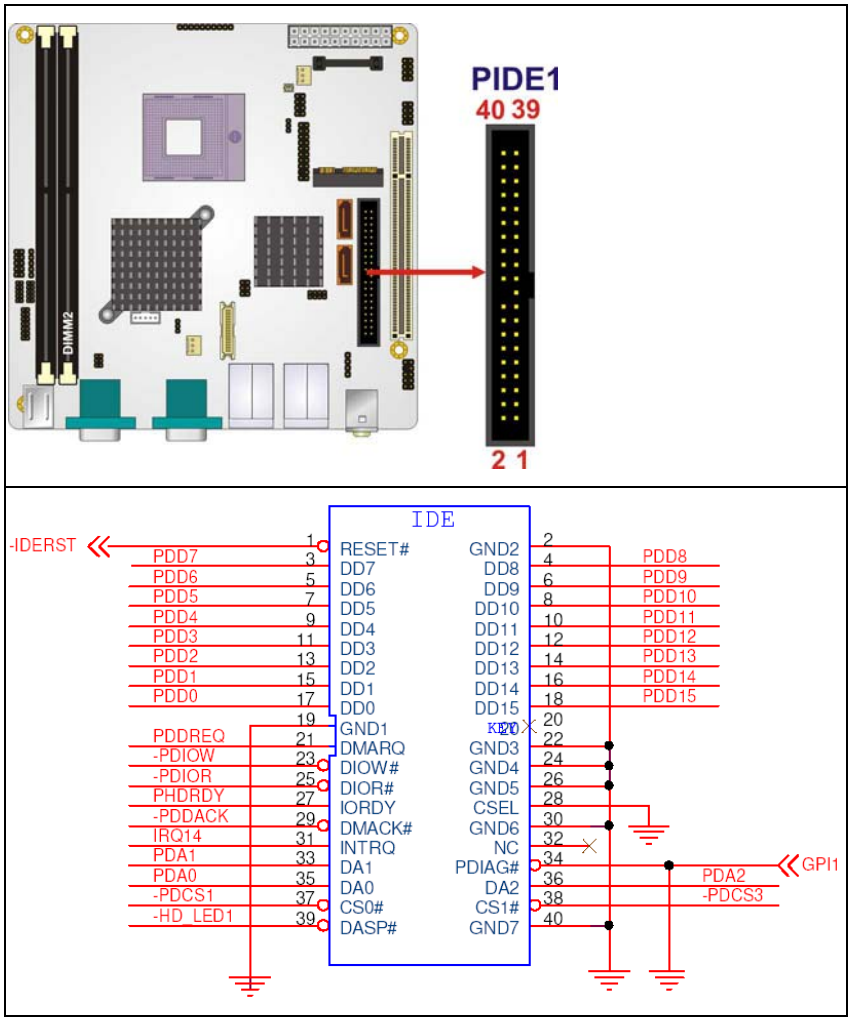


Figure 4-9: IDE Device Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RESET#	2	GND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GND	20	N/C
21	IDE DRQ	22	GND
23	IOW#	24	GND
25	IOR#	26	GND
27	IDE CHRDY	28	BALE – DEFAULT
29	IDE DACK	30	GND
31	INTERRUPT	32	N/C
33	SA1	34	PDIAG#
35	SA0	36	SA2
37	HDC CS0#	38	HDC CS1#
39	HDD ACTIVE#	40	GND

Table 4-10: IDE Connector Pinouts

4.2.9 Infrared Interface Connector

CN Label: **IR1**

CN Type: 5-pin header (1x5)

CN Location: See **Figure 4-10**

CN Pinouts: See Table 4-11

The infrared interface connector supports both Serial Infrared (SIR) and Amplitude Shift Key Infrared (ASKIR) interfaces.

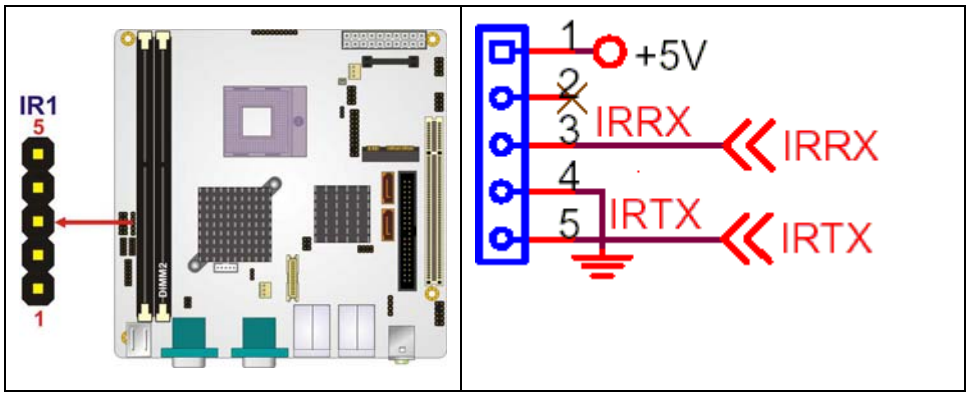


Figure 4-10: Infrared Connector Pinout Locations

PIN NO.	DESCRIPTION
1	VCC
2	NC
3	IR-RX
4	GND
5	IR-TX

Table 4-11: Infrared Connector Pinouts

4.2.10 LCD Backlight Connector

CN Label: **INVERTER1**

CN Type: 5-pin wafer connector (1x5)

CN Location: See **Figure 4-11**

CN Pinouts: See **Table 4-12**

The LCD backlight connector is for the LCD inverter connection.

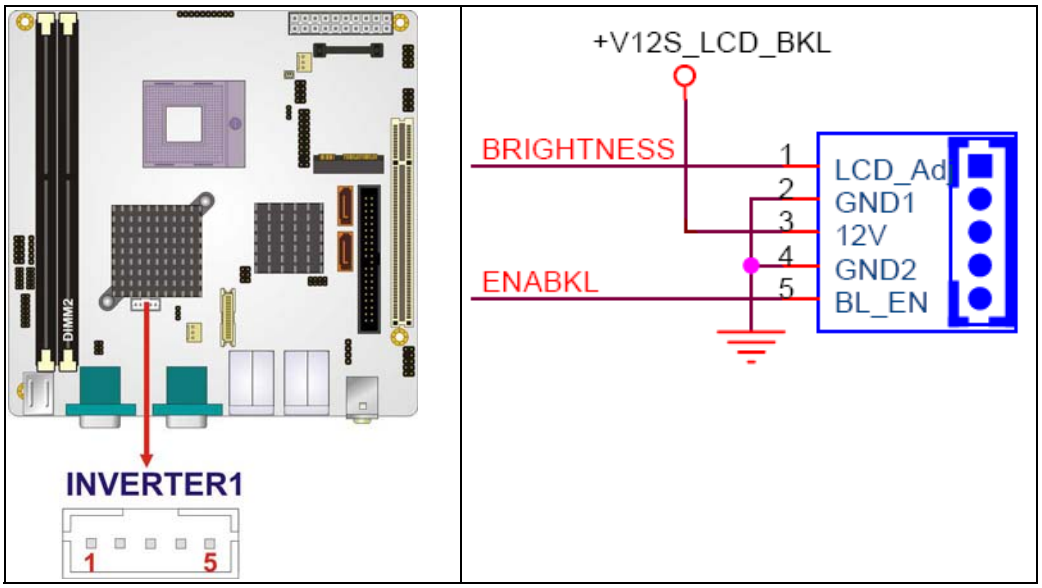


Figure 4-11: LCD Backlight Connector Location

PIN NO.	DESCRIPTION
1	BRIGHTNESS
2	GND1
3	12V
4	GND2
5	BL_EN

Table 4-12: LCD Backlight Connector Pinouts

4.2.11 LVDS LCD connector

CN Label: **LVDS1**

CN Type: 30-pin crimp connector (2x15)

CN Location: See **Figure 4-12**

CN Pinouts: See **Table 4-13**

The connector supports one or two channel 24-bit LVDS panel.

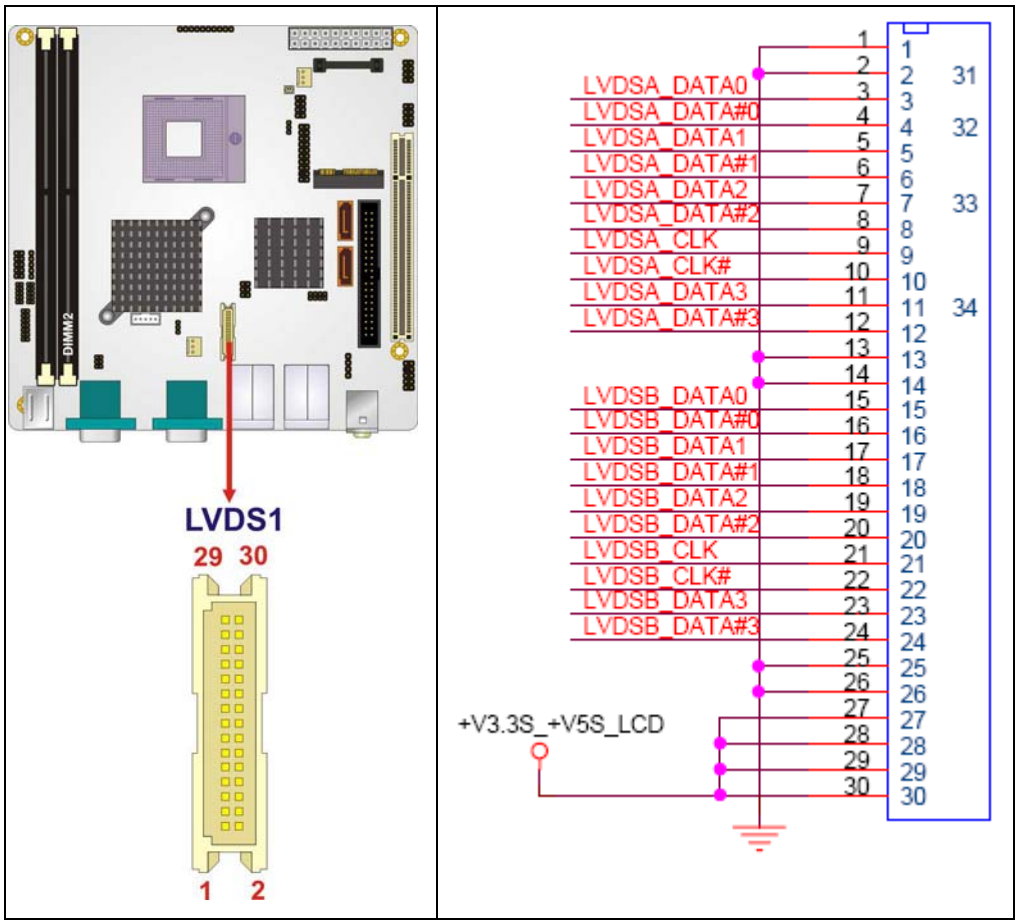


Figure 4-12: LVDS LCD Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	1st LVDS data0 output +	4	1st LVDS data0 output -
5	1st LVDS data1 output +	6	1st LVDS data1 output -
7	1st LVDS data2 output +	8	1st LVDS data2 output -
9	1st LVDS clock output +	10	1st LVDS clock output -
11	1st LVDS data3 output +	12	1st LVDS data3 output -
13	GND	14	GND
15	2nd LVDS data0 output +	16	2nd LVDS data0 output -
17	2nd LVDS data1 output +	18	2nd LVDS data1 output -
19	2nd LVDS data2 output +	20	2nd LVDS data2 output -
21	2nd LVDS clock output +	22	2nd LVDS clock output -

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
23	2nd LVDS data3 output +	24	2nd LVDS data3 output -
25	GND	26	GND
27	+LCD (3.3V or 5V)	28	+LCD (3.3V or 5V)
29	+LCD (3.3V or 5V)	30	+LCD (3.3V or 5V)

Table 4-13: LVDS LCD Connector Pinouts

4.2.12 SATA Drive Connectors

CN Label: **S_ATA1** and **S_ATA2**

CN Type: 7-pin SATA drive connectors (1x7)

CN Location: See **Figure 4-13**

CN Pinouts: See **Table 4-14**

The two SATA drive connectors are connected to four SATA II drives. SATA II drives transfer data at speeds as high as 3.0Gbps.

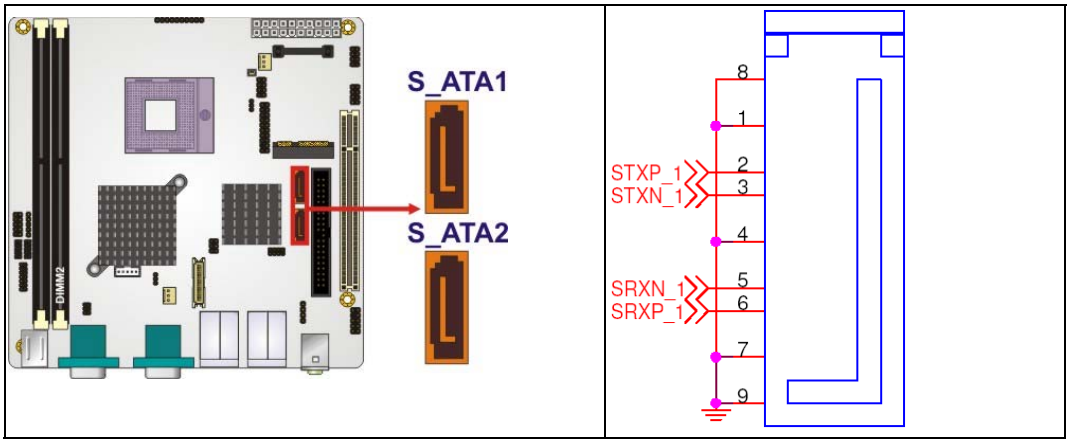


Figure 4-13: SATA Drive Connector Locations

PIN NO.	DESCRIPTION
1	GND
2	TXP
3	TXN

4	GND
5	RXN
6	RXP
7	GND

Table 4-14: SATA Drive Connector Pinouts

4.2.13 Serial Port Connector

CN Label: **COM1**

CN Type: 14-pin header (2x7)

CN Location: See **Figure 4-14**

CN Pinouts: See **Table 4-15**

The serial ports connectors connect to RS-232/422/485 serial port device.

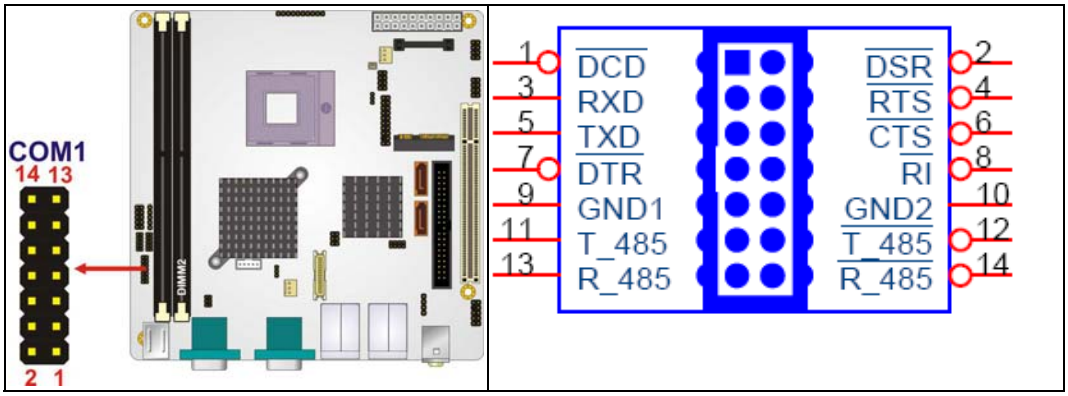


Figure 4-14: 14-Pin Serial Port Connector Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	GND
11	TXD 485+	12	TXD 485#

13	RXD 485+	14	RXD 485#

Table 4-15: COM1 Pinouts

4.2.14 Trusted Platform Module (TPM) Connector

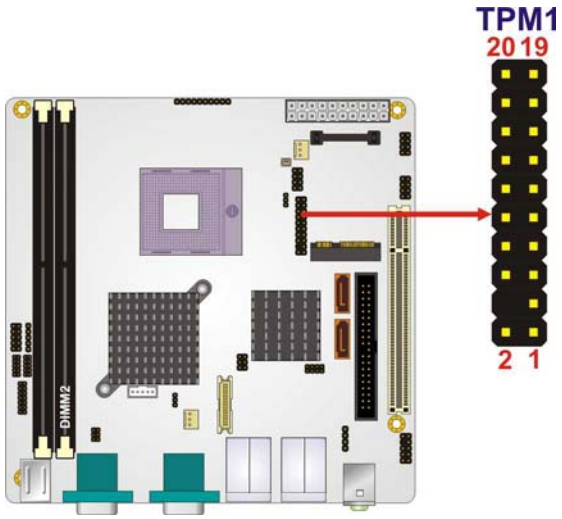
CN Label: **TPM1**

CN Type: 20-pin header (2x10)

CN Location: See **Figure 4-15**

CN Pinouts: See **Table 4-16**

The Trusted Platform Module (TPM) connector secures the system on bootup.



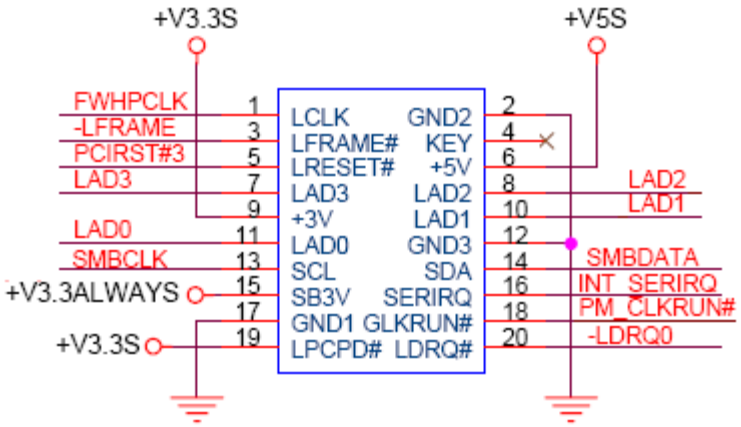


Figure 4-15: TPM Connector Pinout Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	FWHPCLK	2	GND
3	LFRAME#	4	KEY
5	PCIRST#	6	VCC
7	LAD3	8	LAD2
9	VCC3	10	LAD1
11	LAD0	12	GND
13	SMBCLK	14	SMBDATA
15	3VDUAL	16	SERIRQ
17	GND	18	CLKRUN#
19	LPCPD#	20	LDRQ#

Table 4-16: TPM Connector Pinouts

4.2.15 TV Out Connector

CN Label: **TV1**

CN Type: 6-pin header (2x3)

CN Location: See **Figure 4-16**

CN Pinouts: See **Table 4-17**

The 2x3 pin TV out connector connects to a TV output by using an S-Video or RCA connector. The TV out connector makes displaying media data on a television easier.

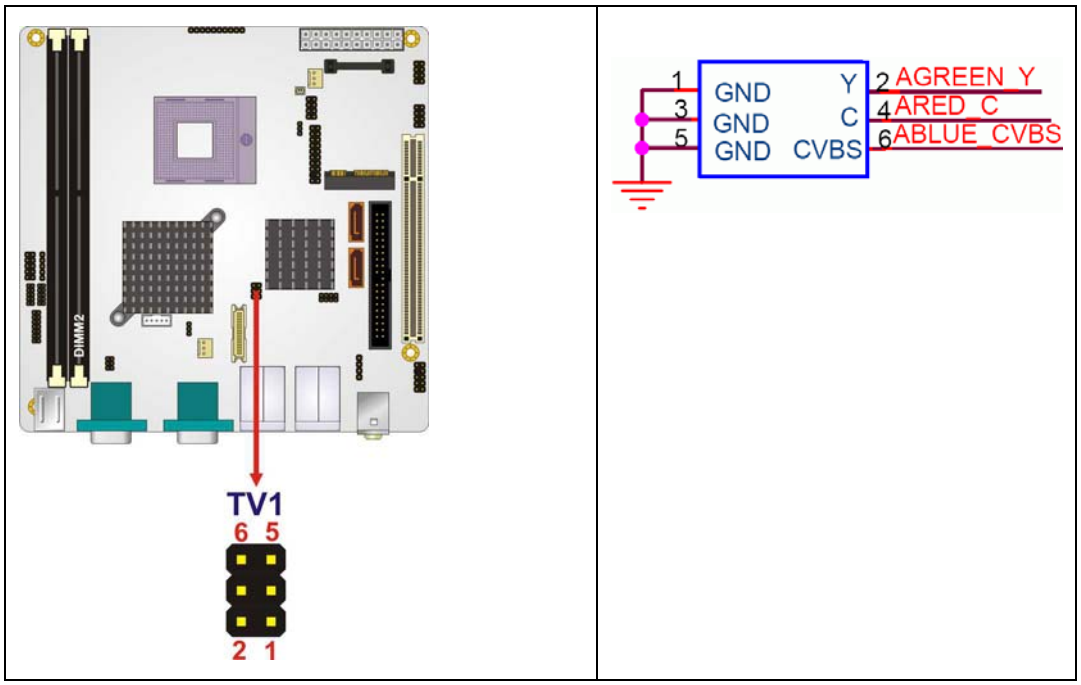


Figure 4-16: TV Connector Pinout Locations

S-Video Connector			
PIN NO.	**DESCRIPTION**	**PIN NO.**	**DESCRIPTION**
1	GND	2	AGREEN_Y
3	GND	4	ARED_C
RCA Connector (only video signal)			
5	GND	6	ABLUE_CVBS

Table 4-17: TV Port Connector Pinouts

4.2.16 Internal USB Connectors

CN Label: **USB1** and **USB2**

CN Type: 8-pin header (2x4)

CN Location: See **Figure 4-17**

CN Pinouts: See **Table 4-18**

One 2x4 pin connector provides connectivity to two USB 2.0 ports. The USB ports are used for I/O bus expansion.

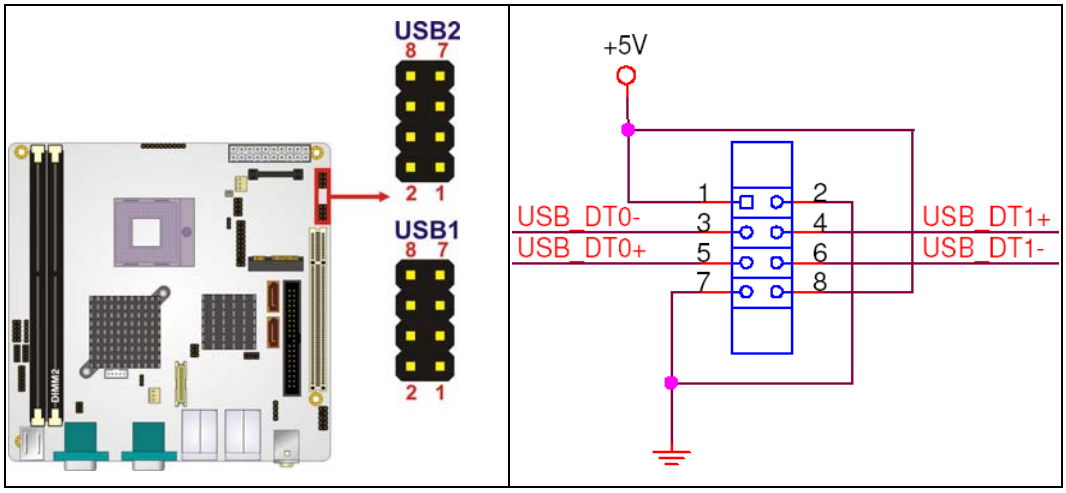


Figure 4-17: Internal USB Connector Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	GND
3	DATA-	4	DATA+
5	DATA+	6	DATA-
7	GND	8	VCC

Table 4-18: USB3 and USB4 Pinouts

4.3 External Interface Connectors

The peripheral connectors on the back panel are connected to devices externally when the KINO-9652 is installed in a chassis. The peripheral connectors on the rear panel are:

- 2 x Audio jacks
- 1 x CRT connector
- 2 x RJ-45 Ethernet connectors
- 1 x Keyboard connector
- 1 x Mouse connector
- 3 x Serial port connectors
- 4 x USB 2.0 connectors

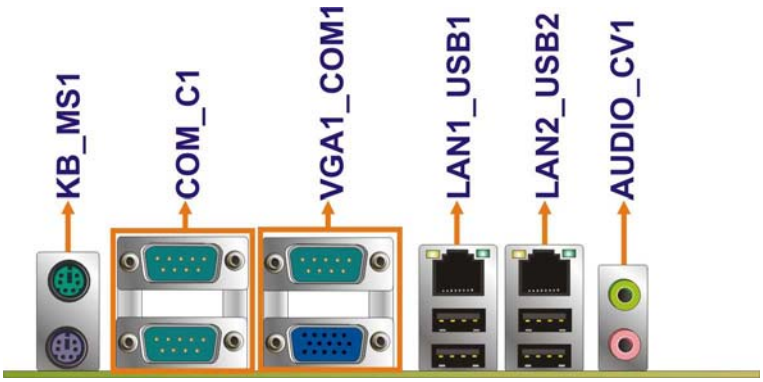


Figure 4-18: KINO-9652 External Interface Connectors

4.3.1 Audio Connectors

CN Label: **AUDIO_CV1**

CN Type: Audio jack

CN Location: See **Figure 4-18**

CN Pinouts: See **Figure 4-19**

- **Line Out port (Lime):** Connects a headphone or a speaker. In 4,6,8-channel configuration, the function of this port becomes Front Speaker Out.
- **Microphone (Pink):** Connects a microphone.

Figure 4-19: Audio Connectors

4.3.2 CRT Connector

CN Label: **VGA1_COM1**

CN Type: 15-pin female connector

CN Location: See **Figure 4-18**

CN Pinouts: See **Table 4-19** and **Figure 4-20**

The standard 15-pin VGA connector connects to a CRT or LCD display monitor.

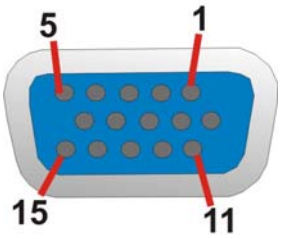


Figure 4-20: VGA Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RED	2	GREEN
3	BLUE	4	N/C
5	GND	6	GND
7	GND	8	GND
9	VCC	10	GND

11	N/C	12	DDC DAT
13	HSYNC	14	VSYNC
15	DDC CLK		

Table 4-19: VGA Connector Pinouts

4.3.3 Ethernet Connectors

CN Label: **LAN1_USB1** and **LAN2_USB2**

CN Type: RJ-45

CN Location: See **Figure 4-18**

CN Pinouts: See **Table 4-20**

The KINO-9652 is equipped with two built-in GbE Ethernet controllers. The controllers can connect to the LAN through two RJ-45 LAN connectors. There are two LEDs on the connector indicating the status of LAN. The pin assignments are listed in the following table:

PIN	DESCRIPTION	PIN	DESCRIPTION
1	CT1	6	MDX2+
2	MDX0+	7	MDX2-
3	MDX0-	8	MDX3+
4	MDX1+	9	MDX3-
5	MDX1-	10	GND

Table 4-20: LAN1 and LAN2 Pinouts

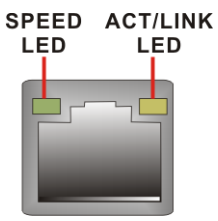


Figure 4-21: RJ-45 Ethernet Connector

The RJ-45 Ethernet connector has two status LEDs, one green and one yellow. The green LED indicates activity on the port and the yellow LED indicates the port is linked. See **Table 4-21**.

SPEED LED		ACT/LINK LED	
STATUS	DESCRIPTION	STATUS	DESCRIPTION
OFF	10Mbps connection	OFF	No link
ORANGE	100Mbps connection	YELLOW	Linked
GREEN	1Gbps connection	BLINKING	Data Activity

Table 4-21: RJ-45 Ethernet Connector LEDs

4.3.4 Keyboard/Mouse Connector

CN Label: **KB_MS1**

CN Type: PS/2 connector

CN Location: See **Figure 4-18**

CN Pinouts: See **Table 4-22**

The KINO-9652 keyboard and mouse connectors are standard PS/2 connectors.

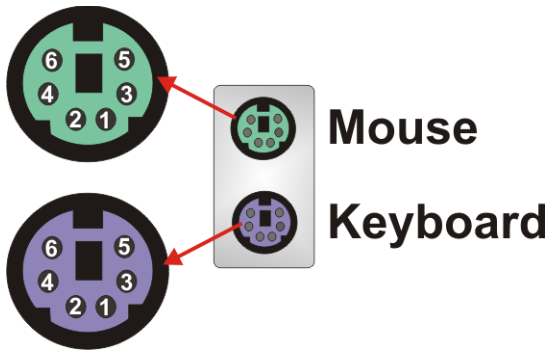


Figure 4-22: PS/2 Pinouts

PIN	DESCRIPTION	PIN	DESCRIPTION
1	L_KDAT	7	L_MDAT
2	NC	8	NC
3	GND	9	GND
4	5V	10	5V
5	L_KCLK	11	L_MCLK
6	NC	12	NC

Table 4-22: PS/2 Connector Pinouts

4.3.5 Serial Port Connectors

CN Label: **VGA1_COM1** and **COM_C1**

CN Type: DB-9

CN Location: See **Figure 4-18**

CN Pinouts: See **Table 4-23**

The serial ports can be connected to a serial communications device directly.

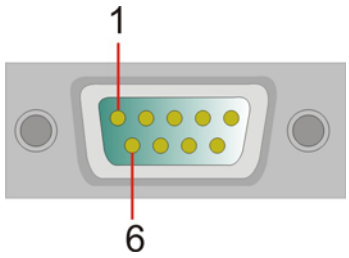


Figure 4-23: External Serial Port Connector

PIN	Description
1	DATA CARRIER DETECT (DCD)
2	RECEIVE DATA (RXD)
3	TRANSMIT DATA (TXD)
4	DATA TERMINAL READY (DTR)

5	GROUND (GND)
6	DATA SET READY (DSR)
7	REQUEST TO SEND (RTS)
8	CLEAR TO SEND (CTS)
9	RING INDICATOR (RI)

Table 4-23: External Serial Port Pinouts

4.3.6 USB Connector

CN Label: **LAN1_USB1** and **LAN2_USB2**

CN Type: USB port

CN Location: See **Figure 4-18**

CN Pinouts: See **Table 4-24**

USB devices can be connected directly to the USB connectors on the rear panel.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	5	VCC
2	USBD0-	6	USBD1-
3	USBD0+	7	USBD1+
4	GND	8	GND

Table 4-24: External USB Connector Pinouts

Chapter

5

Installation

5.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the KINO-9652 may result in permanent damage to the KINO-9652 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the KINO-9652. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the KINO-9652, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***: Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring the KINO-9652, place it on an antic-static pad. This reduces the possibility of ESD damaging the KINO-9652.
- ***Only handle the edges of the PCB***: When handling the PCB, hold the PCB by the edges.

5.2 Installation Considerations

NOTE:

The following installation notices and installation considerations should be read and understood before the KINO-9652 is installed. All installation notices pertaining to the installation of the KINO-9652 should be strictly adhered to. Failing to adhere to these precautions may lead to severe damage of the KINO-9652 and injury to the person installing the motherboard.

5.2.1 Installation Notices

WARNING:

The installation instructions described in this manual should be carefully followed in order to prevent damage to the KINO-9652, KINO-9652 components and injury to the user.

Before and during the installation please **DO** the following:

- **Read the user manual**:
  - The user manual provides a complete description of the KINO-9652 installation instructions and configuration options.
- **Wear an electrostatic discharge cuff (ESD)**:
  - Electronic components are easily damaged by ESD. Wearing an ESD cuff removes ESD from the body and helps prevent ESD damage.
- **Place the KINO-9652 on an antistatic pad**:
  - When installing or configuring the motherboard, place it on an antistatic pad. This helps to prevent potential ESD damage.
- **Turn all power to the KINO-9652 off**:

- When working with the KINO-9652, make sure that it is disconnected from all power supplies and that no electricity is being fed into the system.

Before and during the installation of the KINO-9652 **DO NOT:**

- Remove any of the stickers on the PCB board. These stickers are required for warranty validation.
- Use the product before verifying all the cables and power connectors are properly connected.
- Allow screws to come in contact with the PCB circuit, connector pins, or its components.

5.2.2 Installation Checklist

The following checklist is provided to ensure the KINO-9652 is properly installed.

- All the items in the packing list are present
- The CPU is installed
- The CPU cooling kit is properly installed
- A compatible memory module is properly inserted into the slot
- The jumpers have been properly configured
- The KINO-9652 is inserted into a chassis with adequate ventilation
- The correct power supply is being used
- The following devices are properly connected
  - IDE device
  - SATA drives
  - Power supply
  - USB cable
  - Serial port cable
- The following external peripheral devices are properly connected to the chassis:
  - Audio device
  - VGA screen
  - Keyboard
  - Mouse
  - RS-232 serial communications device

5.3 CPU, CPU Cooling Kit and DIMM Installation

WARNING:

A CPU should never be turned on without the specified cooling kit being installed. If the cooling kit (heat sink and fan) is not properly installed and the system turned on, permanent damage to the CPU, KINO-9652 and other electronic components attached to the system may be incurred. Running a CPU without a cooling kit may also result in injury to the user.

The CPU, CPU cooling kit and DIMM are the most critical components of the KINO-9652. If one of these component is not installed the KINO-9652 cannot run.

5.3.1 Socket P CPU Installation

WARNING:

CPUs are expensive and sensitive components. When installing the CPU please be careful not to damage it in anyway. Make sure the CPU is installed properly and ensure the correct cooling kit is properly installed.

To install a socket P CPU onto the KINO-9652, follow the steps below:

WARNING:

When handling the CPU, only hold it on the sides. DO NOT touch the pins at the bottom of the CPU.

Step 1: **Unlock the CPU retention screw.** When shipped, the retention screw of the

CPU socket should be in the unlocked position. If it is not in the unlocked position, use a screwdriver to unlock the screw. See **Figure 5-1**.

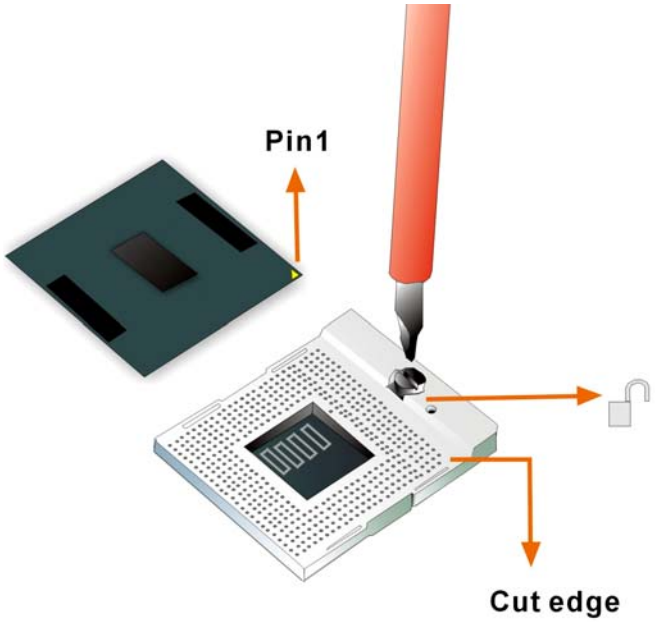


Figure 5-1: Make sure the CPU socket retention screw is unlocked

Step 2: **Inspect the CPU socket.** Make sure there are no bent pins and make sure the socket contacts are free of foreign material. If any debris is found, remove it with compressed air.

Step 3: **Correctly Orientate the CPU**. Make sure the IHS (integrated heat sink) side is facing upwards.

Step 4: **Correctly position the CPU.** Match the Pin 1 mark with the cut edge on the CPU socket. See **Figure 5-1**.

Step 5: **Align the CPU pins.** Carefully align the CPU pins with the holes in the CPU socket.

Step 6: **Insert the CPU.** Gently insert the CPU into the socket. If the CPU pins are properly aligned, the CPU should slide into the CPU socket smoothly.

Step 7: **Lock the retention screw.** Rotate the retention screw into the locked position. See **Figure 5-2**.

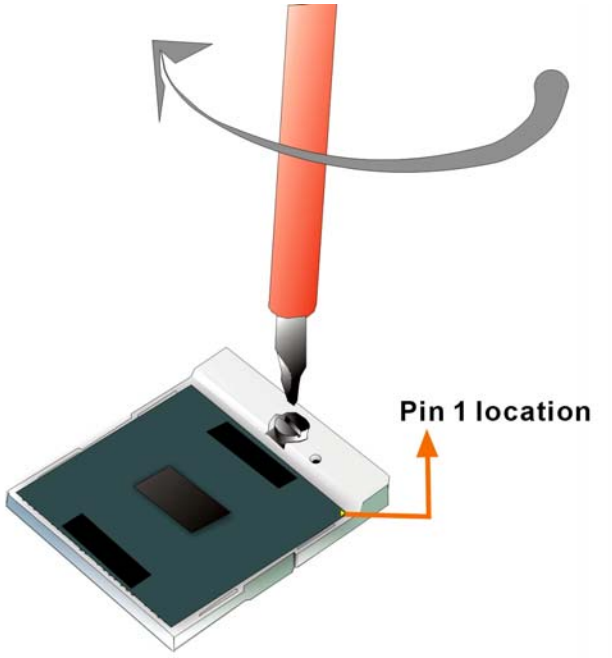


Figure 5-2: Lock the CPU Socket Retention Screw

5.3.2 Cooling Kit CF-479B-RS Installation

Figure 5-3: IEI CF-479B-RS Cooling Kit

An IEI Socket P CPU cooling kit can be purchased separately. The cooling kit comprises a CPU heat sink and a cooling fan.

WARNING:

Do not wipe off (accidentally or otherwise) the pre-sprayed layer of thermal paste on the bottom of the CF-479B-RS heat sink. The thermal paste between the CPU and the heat sink is important for optimum heat dissipation.

To install the CF-479B-RS cooling kit, please follow the steps below.

Step 1: **Place the cooling kit onto the CPU**. Make sure the CPU cooling fan cable can be properly routed when the cooling kit is installed.

Step 2: **Properly align the cooling kit**. Make sure its four spring screw fasteners can pass through the pre-drilled holes on the PCB.

Step 3: **Secure the cooling kit**. From the solder side of the PCB, align the support bracket to the screw threads on heat sink that were inserted through the PCB holes. (See **Figure 5-4**)

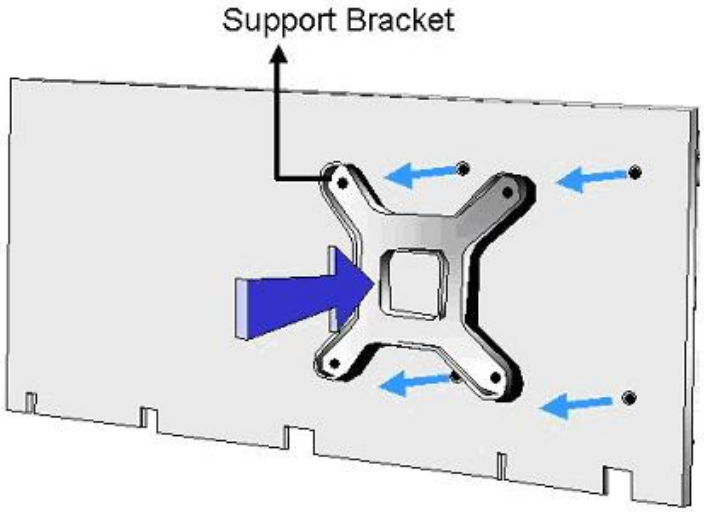


Figure 5-4: Cooling Kit Support Bracket

Step 4: **Tighten the screws**. Use a screwdriver to tighten the four screws. Tighten each nut a few turns at a time and do not over-tighten the screws.

Step 5: **Connect the fan cable**. Connect the cooling kit fan cable to the fan connector on the motherboard. Carefully route the cable and avoid heat generating chips and fan blades. See **Figure 5-5**.

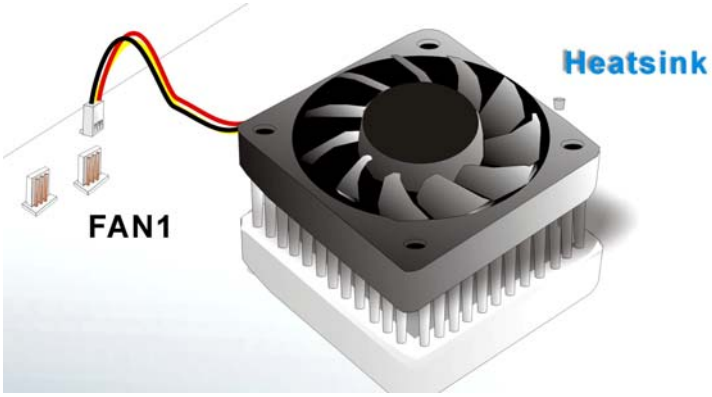


Figure 5-5: Connect the cooling fan cable

5.3.3 DIMM Installation

WARNING:

Only DDR2 memory module can be installed on the KINO-9652. Do not install DDR memory modules. If a DDR memory module is installed on the KINO-9652, the KINO-9652 may be irreparably damaged. Please make sure the purchased DIMM complies with the memory specifications of the KINO-9652. DIMM specifications compliant with the KINO-9652 are listed in **Chapter 2**.

CAUTION:

The **DIMM1** socket must be installed with one DDR2 DIMM to enable the KINO-9652 to boot-up properly.

To install a DIMM into a DIMM socket, please follow the steps below and refer to **Figure 5-6**.

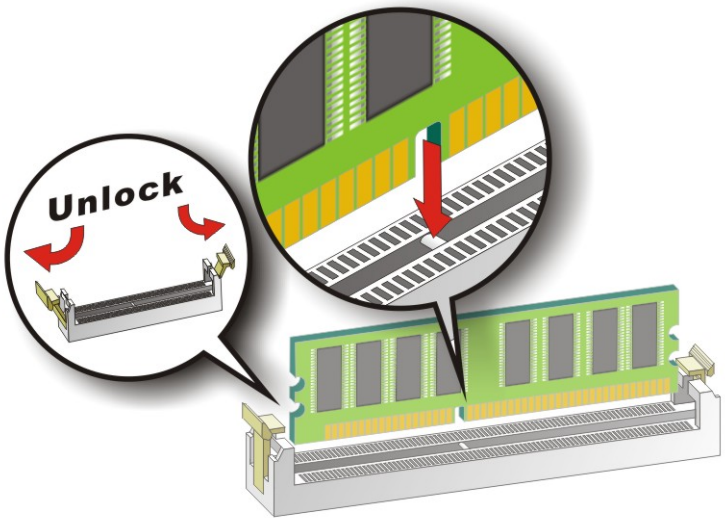


Figure 5-6: Installing a DIMM

Step 1: **Open the DIMM socket handles**. The DIMM socket has two handles that secure the DIMM into the socket. Before the DIMM can be inserted into the socket, the handles must be opened. See **Figure 5-6**.

Step 2: **Align the DIMM with the socket**. The DIMM must be oriented in such a way that the notch in the middle of the DIMM must be aligned with the plastic bridge in the socket. See **Figure 5-6**.

Step 3: **Insert the DIMM**. Once properly aligned, the DIMM can be inserted into the socket. As the DIMM is inserted, the white handles on the side of the socket will close automatically and secure the DIMM to the socket. See **Figure 5-6**.

Step 4: **Removing a DIMM**. To remove a DIMM, push both handles outward. The memory module is ejected by a mechanism in the socket.

5.4 Jumper Settings

NOTE:

A jumper is a metal bridge used to close an electrical circuit. It consists of two or three metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To CLOSE/SHORT a jumper means connecting the pins of the jumper with the plastic clip and to OPEN a jumper means removing the plastic clip from a jumper.

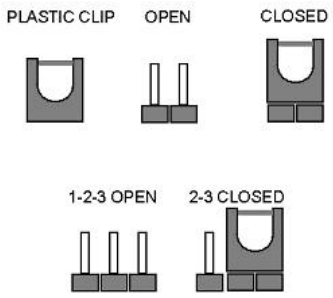


Figure 5-7: Jumper Locations

Before the KINO-9652 is installed in the system, the jumpers must be set in accordance with the desired configuration. The jumpers on the KINO-9652 are listed in **Table 5-1**.

Description	Label	Type
Clear CMOS	J_CMOS1	3-pin header
COM 4 function selection	JP5	6-pn header
COM port RI and voltage selection	JP1, JP2	10-pin header
LVDS LCD voltage selection	J_VLVDS1	3-pin header
LVDS LCD resolution selection	JP3	8-pin header

Table 5-1: Jumpers

5.4.1 Clear CMOS Jumper

Jumper Label: **J_COMS1**

Jumper Type: 3-pin header

Jumper Settings: See **Table 5-2**

Jumper Location: See **Figure 5-8**

If the KINO-9652 fails to boot due to improper BIOS settings, the clear CMOS jumper clears the CMOS data and resets the system BIOS information. To do this, use the jumper cap to close pins 2 and 3 for a few seconds then reinstall the jumper clip back to pins 1 and 2.

If the “CMOS Settings Wrong” message is displayed during the boot up process, the fault may be corrected by pressing the F1 to enter the CMOS Setup menu. Do one of the following:

- Enter the correct CMOS setting
- Load Optimal Defaults
- Load Failsafe Defaults.

After having done one of the above, save the changes and exit the CMOS Setup menu.

The clear CMOS jumper settings are shown in **Table 5-2**.

Clear CMOS	Description	
Short 1 - 2	Keep CMOS Setup	Default
Short 2 - 3	Clear CMOS Setup	

Table 5-2: Clear CMOS Jumper Settings

The location of the clear CMOS jumper is shown in **Figure 5-8** below.

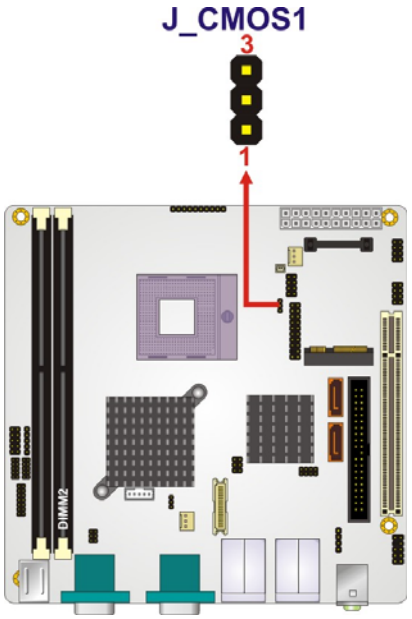


Figure 5-8: Clear CMOS Jumper

5.4.2 COM 4 Function Select Jumper

Jumper Label:	**JP5**
Jumper Type:	6-pin header
Jumper Settings:	See **Table 5-3**
Jumper Location:	See **Figure 5-9**

The COM 4 Function Select jumper sets the communication protocol used by the second serial communications port (COM 4) as RS-232, RS-422 or RS-485. The COM 4 Function Select settings are shown in **Figure 5-9**.

COM 4 Function Select	Description	
Short 1-2	RS-232	Default
Short 3-4	RS-422	
Short 5-6	RS-485	

Table 5-3: COM 4 Function Select Jumper Settings

The COM 4 Function Select jumper location is shown in **Table 5-3**.

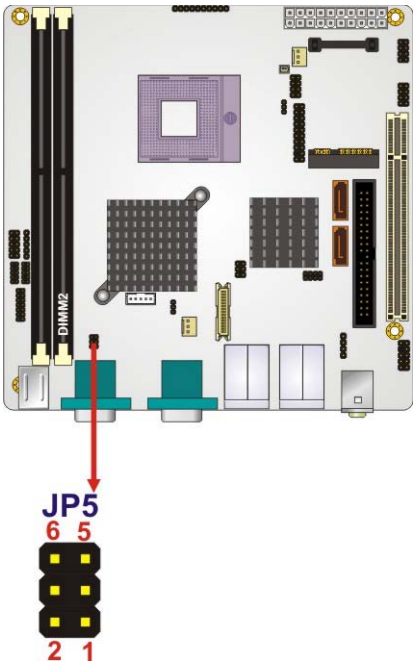


Figure 5-9: COM 4 Function Select Jumper Location

5.4.3 COM Port Pin 9 Setting Jumpers

Jumper Label:	**JP1** and **JP2**
Jumper Type:	10-pin header
Jumper Settings:	See **Table 5-4** and **Table 5-5**
Jumper Location:	See **Figure 5-10**

The COM port Pin 9 Setting jumpers (JP1 and JP2) configure pin 9 on COM 1, COM 2, COM 3 and COM 4 as either a +5V, +12V power source or as a ring-in (RI) line. The COM port Pin 9 Setting jumpers selection options are shown in **Table 5-4** and **Table 5-5**.

JP1	Description	
Short 1 – 3	COM 1 RI Pin use +12V	
Short 3 – 5	COM 1 RI Pin use +5V	
Short 5 – 7	COM 1 RI Pin use +5V	

Short 7 – 9	COM 1 RI Pin use RI	Default
Short 2 – 4	COM 2 RI Pin use +12V	
Short 4 – 6	COM 2 RI Pin use +5V	
Short 6 – 8	COM 2 RI Pin use +5V	
Short 8 – 10	COM 2 RI Pin use RI	Default

Table 5-4: COM 1/2 Pin 9 Setting Jumper Settings

JP2	Description	
Short 1 – 3	COM 3 RI Pin use +12V	
Short 3 – 5	COM 3 RI Pin use +5V	
Short 5 – 7	COM 3 RI Pin use +5V	
Short 7 – 9	COM 3 RI Pin use RI	Default
Short 2 – 4	COM 4 RI Pin use +12V	
Short 4 – 6	COM 4 RI Pin use +5V	
Short 6 – 8	COM 4 RI Pin use +5V	
Short 8 – 10	COM 4 RI Pin use RI	Default

Table 5-5: COM 3/4 Pin 9 Setting Jumper Settings

The COM port Pin 9 Setting jumper locations are shown in **Figure 5-10** below.

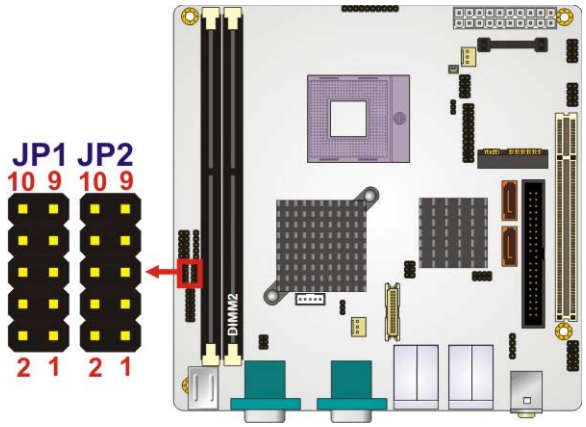


Figure 5-10: COM Port Pin 9 Setting Jumper Locations

5.4.4 LVDS Voltage Selection

WARNING:

Permanent damage to the screen and KINO-9652 may occur if the wrong voltage is selected with this jumper. Please refer to the user guide that cam with the monitor to select the correct voltage.

Jumper Label:	**J_VLVDS1**
Jumper Type:	3-pin header
Jumper Settings:	See **Table 5-6**
Jumper Location:	See **Figure 5-11**

The **LVDS Voltage Selection** jumper allows the LVDS screen voltage to be set. The **LVDS Voltage Selection** jumper settings are shown in **Table 5-6**.

LVDS Voltage Select	Description	
Short 1-2	+3V	Default
Short 2-3	+5V	

Table 5-6: LVDS Voltage Selection Jumper Settings

The LVDS Voltage Selection jumper location is shown in **Figure 5-11**.

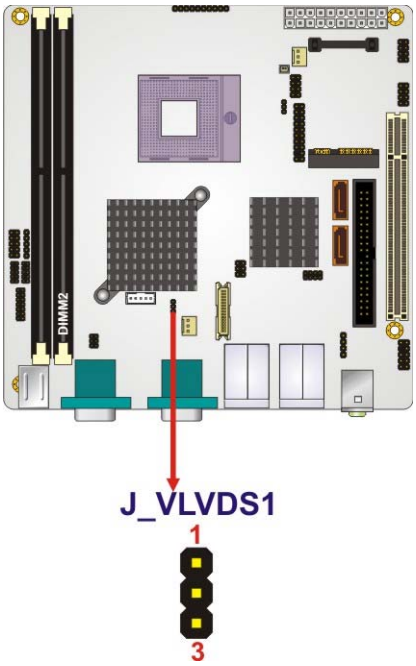


Figure 5-11: LVDS Voltage Selection Jumper Pinout Locations

5.4.5 LVDS Panel Resolution Selection

Jumper Label:	**JP3**
Jumper Type:	8-pin header
Jumper Settings:	See **Table 5-7**
Jumper Location:	See **Figure 5-12**

The **LVDS Panel Resolution Selection** jumper allows the LVDS screen resolution to be set. The **LVDS Panel Resolution Selection** jumper settings are shown in **Table 5-7**.

LVDS Resolution Select	Description	
Open	640 x 480 (18-bit)	Default
Short 1-2	800 x 600 (18-bit)	
Short 3-4	1024 x 768 (18-bit)	
Short 1-2 & 3-4	1280 x 1024 (48-bit)	
Short 3-4 & 5-6	1600 x 1200 (48-bit)	

Short 3-4 & 7-8	1024 x 768 (24-bit)	

Table 5-7: LVDS Resolution Selection Jumper Settings

The LVDS Voltage Selection jumper location is shown in **Figure 5-12**.

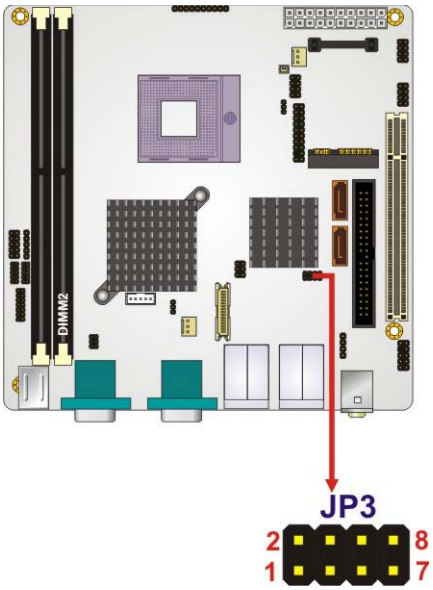


Figure 5-12: LVDS Resolution Selection Jumper Pinout Locations

5.5 Chassis Installation

5.5.1 Airflow

WARNING:

Airflow is critical to the cooling of the CPU and other onboard components. The chassis in which the KINO-9652 must have air vents to allow cool air to move into the system and hot air to move out.

The KINO-9652 must be installed in a chassis with ventilation holes on the sides allowing airflow to travel through the heat sink surface. In a system with an individual power supply

unit, the cooling fan of a power supply can also help generate airflow through the board surface.

NOTE:

IEI has a wide range of backplanes available. Please contact your KINO-9652 vendor, reseller or an IEI sales representative at sales@iei.com.tw or visit the IEI website (http://www.ieiworld.com.tw) to find out more about the available chassis.

5.5.2 Motherboard Installation

To install the KINO-9652 motherboard into the chassis, please refer to the reference material that came with the chassis.

5.6 Internal Peripheral Device Connections

5.6.1 Peripheral Device Cables

The cables listed in **Table 5-8** are shipped with the KINO-9652.

Quantity	Type
1	IDE cable
1	RS-232/422/485 cable
2	SATA drive cables
1	SATA drive power cable

Table 5-8: IEI Provided Cables

Optional cables are listed below:

- USB cable (dual port)

- HDTV/TV cable with Component output

5.6.2 IDE Cable Connection

The IDE flat cable connects to the KINO-9652 to one or two IDE devices. To connect an IDE HDD to the KINO-9652, please follow the instructions below.

Step 1: **Locate the IDE connector**. The location of the IDE device connector is shown in **Chapter 3**.

Step 2: **Insert the connector**. Connect the IDE cable connector to the onboard connector. See **Figure 5-13**. A key on the front of the cable connector ensures it can only be inserted in one direction.

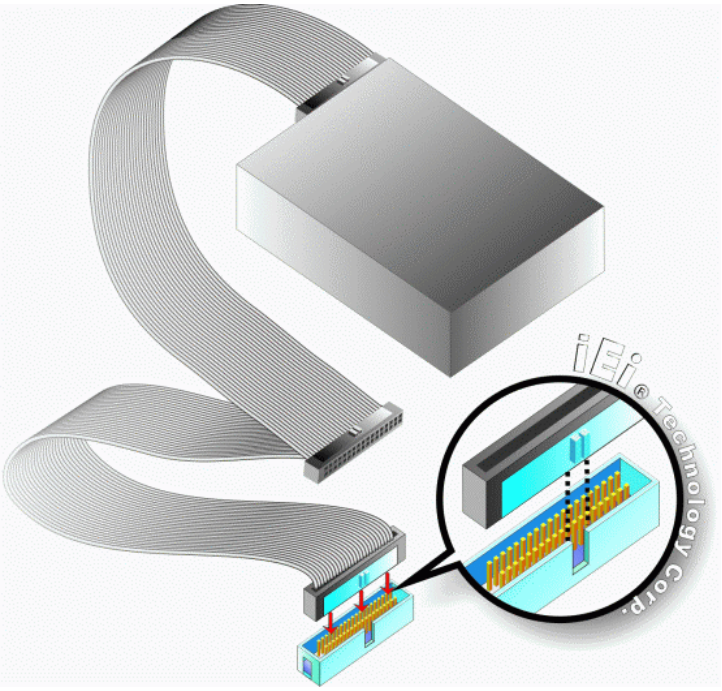


Figure 5-13: IDE Cable Connection

Step 3: **Connect the cable to an IDE device**. Connect the two connectors on the other side of the cable to one or two IDE devices. Make sure that pin 1 on the cable corresponds to pin 1 on the connector.

5.6.3 Dual RS-232 Cable Connection

The dual RS-232 cable consists of two connectors attached to two independent cables. Each cable is then attached to a D-sub 9-pin male connector. To install the dual RS-232 cable, please follow the steps below.

Step 1: **Locate the connectors**. The locations of the RS-232 connectors are shown in **Chapter 3**.

Step 2: **Insert the cable connectors**. Insert one connector into each serial port box headers. See **Figure 5-14**. A key on the front of the cable connectors ensures the connector can only be installed in one direction.

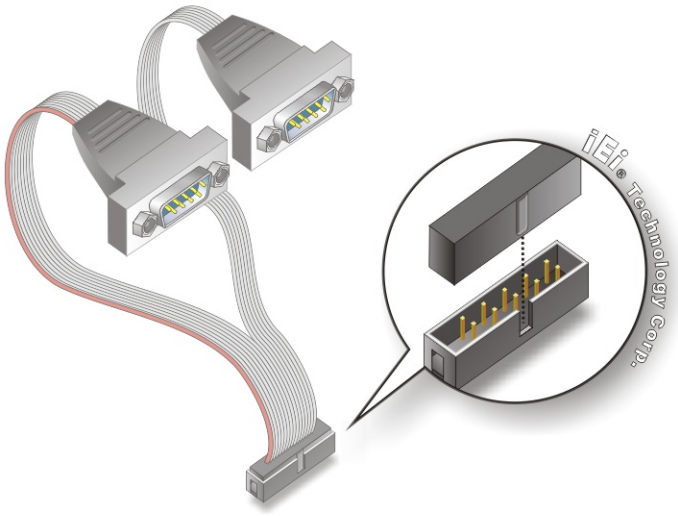


Figure 5-14: Dual RS-232 Cable Installation

Step 3: **Secure the connectors**. Both single RS-232 connectors have two retention screws that must be secured to a chassis or bracket.

Step 4: **Connect the serial device**. Once the single RS-232 connectors are connected to a chassis or bracket, a serial communications device can be connected to the system.

5.6.4 SATA Drive Connection

The KINO-9652 is shipped with two SATA drive cables and one SATA drive power cable. To connect the SATA drives to the connectors, please follow the steps below.

Step 1: **Locate the connectors**. The locations of the SATA drive connectors are shown in **Chapter 3**.

Step 2: **Insert the cable connector**. Press the clip on the connector at the end of the SATA cable and insert the cable connector into the onboard SATA drive connector. See **Figure 5-15**.

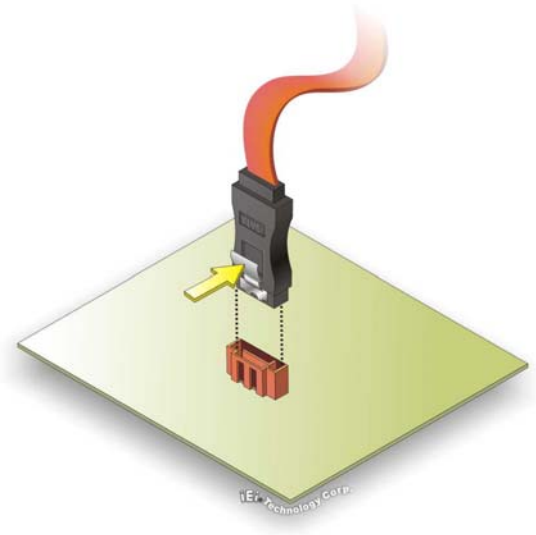


Figure 5-15: SATA Drive Cable Connection

Step 3: **Connect the cable to the SATA disk**. Connect the connector on the other end of the cable to the connector at the back of the SATA drive. See **Figure 5-16**.

Step 4: **Connect the SATA power cable**. Connect the SATA power connector to the back of the SATA drive. See **Figure 5-16**.

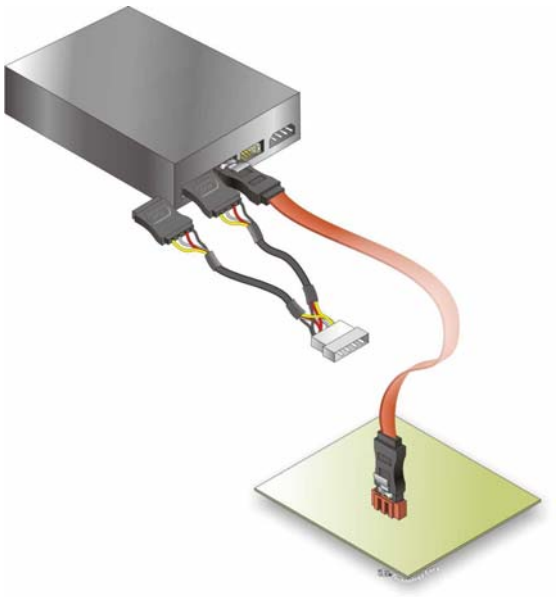


Figure 5-16: SATA Power Drive Connection

5.6.5 USB Cable (Dual Port) with Slot Bracket

The KINO-9653 can be shipped with a dual port USB 2.0 cable. To connect the USB cable connector, please follow the steps below.

Step 1: **Locate the connectors**. The locations of the USB connectors are shown in **Chapter 3**.

WARNING:

If the USB pins are not properly aligned, the USB device can burn out.

Step 2: **Align the connectors**. The cable has two connectors. Correctly align pin 1on each cable connector with pin 1 on the KINO-9652 USB connector.

Step 3: **Insert the cable connectors** Once the cable connectors are properly aligned with the USB connectors on the KINO-9652, connect the cable connectors to the

onboard connectors. See **Figure 5-17**.

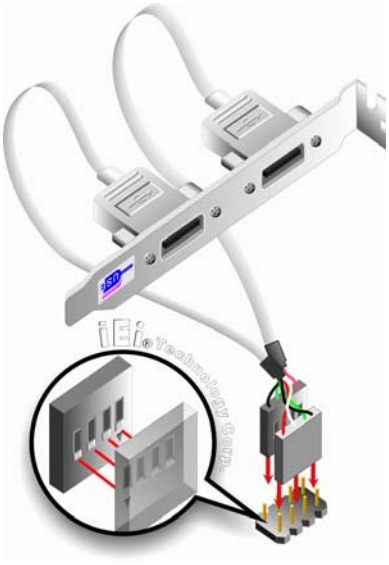


Figure 5-17: Dual USB Cable Connection

Step 4: **Attach the bracket to the chassis**. The USB 2.0 connectors are attached to a bracket. To secure the bracket to the chassis please refer to the installation instructions that came with the chassis.

5.7 External Peripheral Interface Connection

The following external peripheral devices can be connected to the external peripheral interface connectors.

- Audio devices
- RJ-45 Ethernet cables
- USB devices
- VGA monitor
- Serial port devices
- Mouse and keyboard

To install these devices, connect the corresponding cable connector from the actual device to the corresponding KINO-9652 external peripheral interface connector making sure the pins are properly aligned.

5.7.1 Audio Connection

Audio signals are interfaced through two phone jack connections. Follow the steps below to connect audio devices to the KINO-9652.

Step 1: **Locate the audio phone jacks**. The location of the audio phone jacks are shown in **Chapter 3**.

Step 2: **Insert audio phone jack plugs**. Insert audio phone jack plugs into the audio phone jacks on the external peripheral interface. See **Figure 5-18**.

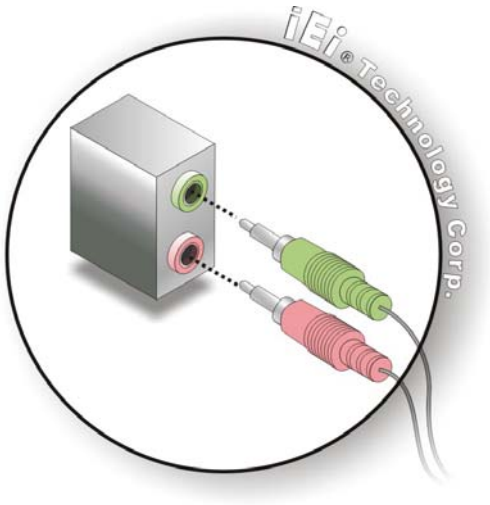


Figure 5-18: Audio Connectors

5.7.2 RJ-45 Ethernet and USB Connection

The KINO-9652 has two RJ-45 Ethernet and USB combo connectors on the external peripheral interface panel for LAN communications and USB device. Follow the steps below to connect an RJ-45 Ethernet and USB connectors to the KINO-9652.

Step 1: **Locate the RJ-45 and USB combo connector**. The location of the RJ-45 and

USB combo connector is shown in **Chapter 3**.

Step 2: **Insert an RJ-45 plug**. Insert the RJ-45 plug of a LAN into the RJ-45 receptacle on the external peripheral interface. See **Figure 5-19**.

Step 3: **Insert a USB Series "A" plug**. Insert the USB Series "A" plug of a device into the USB Series "A" receptacle on the external peripheral interface. See **Figure 5-19**.

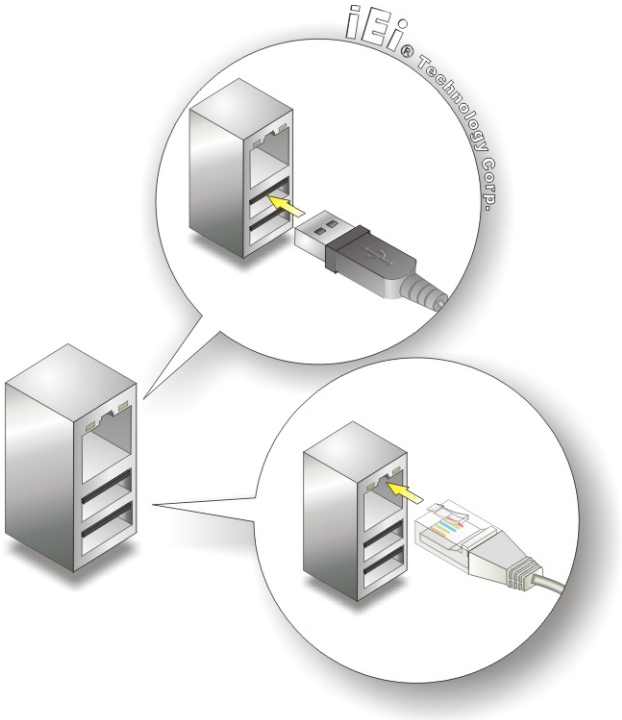


Figure 5-19: RJ-45 Ethernet Connector

5.7.3 VGA Monitor Connection

The KINO-9652 has a single female DB-15 connector on the external peripheral interface panel. The DB-15 connector is connected to a CRT or VGA monitor. To connect a monitor to the KINO-9652, please follow the instructions below.

Step 1: **Locate the female DB-15 connector**. The location of the female DB-15 connector is shown in **Chapter 3**.

Step 2: **Align the VGA connector**. Align the male DB-15 connector on the VGA screen

cable with the female DB-15 connector on the external peripheral interface.

Step 3: **Insert the VGA connector** Once the connectors are properly aligned with the insert the male connector from the VGA screen into the female connector on the KINO-9652. See **Figure 5-20**.

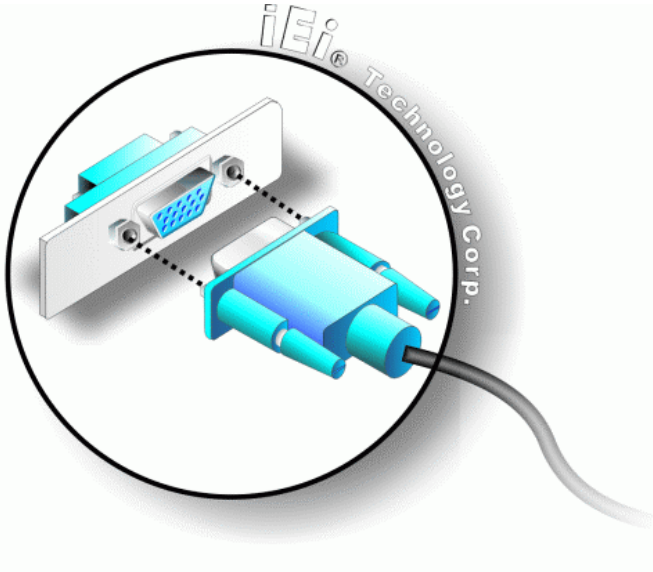


Figure 5-20: VGA Connector

Step 4: **Secure the connector**. Secure the DB-15 VGA connector from the VGA monitor to the external interface by tightening the two retention screws on either side of the connector.

5.7.4 Serial Device Connection

The KINO-9652 has one female DB-9 connector on the external peripheral interface panel for serial devices. Follow the steps below to connect a serial device to the KINO-9652.

Step 1: **Locate the DB-9 connector**. The location of the DB-9 connector is shown in **Chapter 3**.

Step 2: **Insert the serial connector**. Insert the DB-9 connector of a serial device into the DB-9 connector on the external peripheral interface. See **Figure 5-21**.

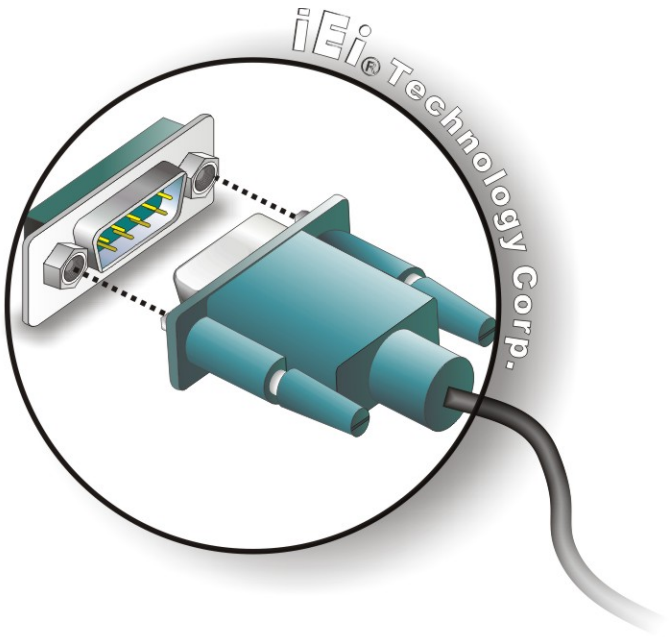


Figure 5-21: Serial Device Connector

Step 3: **Secure the connector**. Secure the serial device connector to the external interface by tightening the two retention screws on either side of the connector.

5.7.5 PS/2 Keyboard/Mouse Connection

The KINO-9652 has a dual PS/2 connector on the external peripheral interface panel. The dual PS/2 connector is used to connect to a keyboard and mouse to the system. Follow the steps below to connect a keyboard and mouse to the KINO-9652.

Step 1: **Locate the dual PS/2 connector**. The location of the dual PS/2 connector is shown in **Chapter 3**.

Step 2: **Insert the keyboard/mouse connector**. Insert a PS/2 keyboard or mouse connector into the appropriate PS/2 connector on the external peripheral interface connector. See **Figure 5-22**.

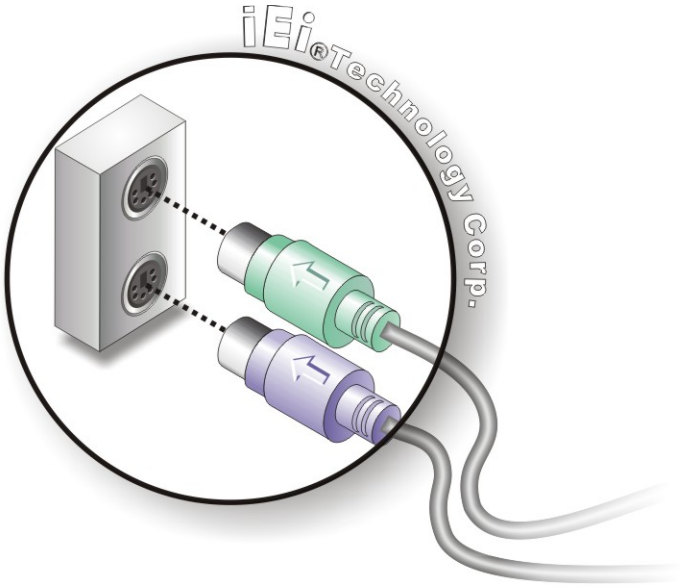


Figure 5-22: PS/2 Keyboard/Mouse Connector

Chapter

6

AMI BIOS

6.1 Introduction

A licensed copy of AMI BIOS is preprogrammed into the ROM BIOS. The BIOS setup program allows users to modify the basic system configuration. This chapter describes how to access the BIOS setup program and the configuration options that may be changed.

6.1.1 Starting Setup

The AMI BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

1. Press the **DELETE** key as soon as the system is turned on or
2. Press the **DELETE** key when the "**Press Del to enter SETUP**" message appears on the screen.

If the message disappears before the **DELETE** key is pressed, restart the computer and try again.

6.1.2 Using Setup

Use the arrow keys to highlight items, press **ENTER** to select, use the PageUp and PageDown keys to change entries, press **F1** for help and press **ESC** to quit. Navigation keys are shown in.

Key	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
Esc key	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
Page Up key	Increase the numeric value or make changes
Page Dn key	Decrease the numeric value or make changes

F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 /F3 key	Change color from total 16 colors. F2 to select color forward.
F10 key	Save all the CMOS changes, only for Main Menu

Table 6-1: BIOS Navigation Keys

6.1.3 Getting Help

When **F1** is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window press **Esc** or the **F1** key again.

6.1.4 Unable to Reboot After Configuration Changes

If the computer cannot boot after changes to the system configuration is made, CMOS defaults. Use the jumper described in Chapter **5**.

6.1.5 BIOS Menu Bar

The **menu bar** on top of the BIOS screen has the following main items:

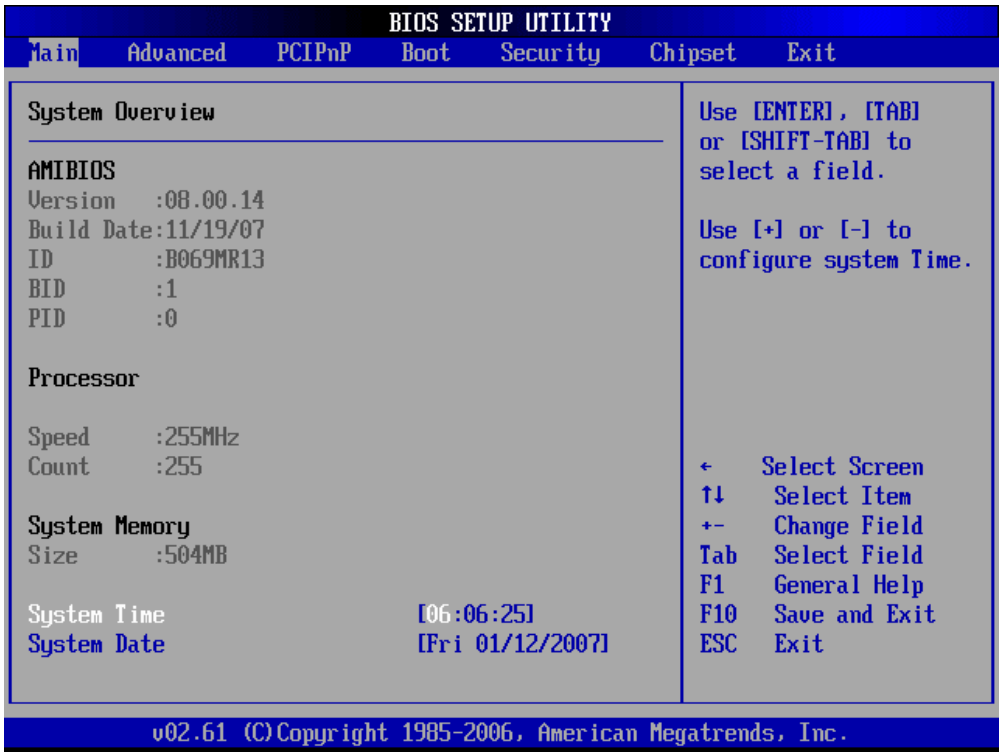
- **Main** Changes the basic system configuration.
- **Advanced** Changes the advanced system settings.
- **PCIPnP** Changes the advanced PCI/PnP Settings
- **Boot** Changes the system boot configuration.
- **Security** Sets User and Supervisor Passwords.
- **Chipset** Changes the chipset settings.
- **Exit** Selects exit options and loads default settings

The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.

6.2 Main

The **Main** BIOS menu (**BIOS Menu 1**) appears when the **BIOS Setup** program is entered.

The **Main** menu gives an overview of the basic system information.



BIOS Menu 1: Main

➔ System Overview

The **System Overview** lists a brief summary of different system components. The fields in **System Overview** cannot be changed. The items shown in the system overview include:

- **AMI BIOS**: Displays auto-detected BIOS information
  - **Version**: Current BIOS version
  - **Build Date**: Date the current BIOS version was made
  - **ID**: Installed BIOS ID
- **Processor**: Displays auto-detected CPU specifications
  - **Type**: Names the currently installed processor
  - **Speed**: Lists the processor speed

- **Count**: The number of CPUs on the motherboard

- **System Memory**: Displays the auto-detected system memory.
  - **Size**: Lists memory size

The **System Overview** field also has two user configurable fields:

➔ **System Time [xx:xx:xx]**

Use the **System Time** option to set the system time. Manually enter the hours, minutes and seconds.

➔ **System Date [xx/xx/xx]**

Use the **System Date** option to set the system date. Manually enter the day, month and year.

6.3 Advanced

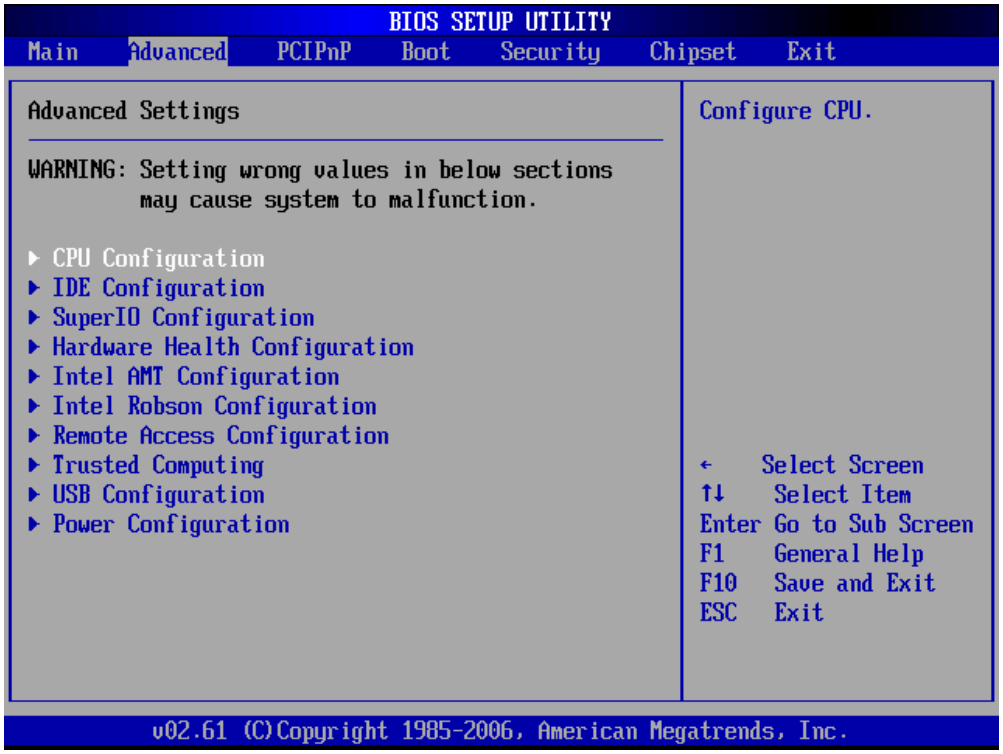
Use the **Advanced** menu (**BIOS Menu 2**) to configure the CPU and peripheral devices through the following sub-menus:

WARNING!

Setting the wrong values in the sections below may cause the system to malfunction. Make sure that the settings made are compatible with the hardware.

- CPU Configuration (see **Section 6.3.1**)
- IDE Configuration (see **Section 6.3.2**)
- Super IO Configuration (see **Section 6.3.3**)
- Hardware Health Configuration (see **Section 6.3.4**)
- Intel AMT Configuration (see **Section 6.3.5**)
- Intel Robson Configuration (see **Section 6.3.6**)
- Remote Access Configuration (see **Section 6.3.7**)
- Trusted Computing (see **Section 6.3.8**)

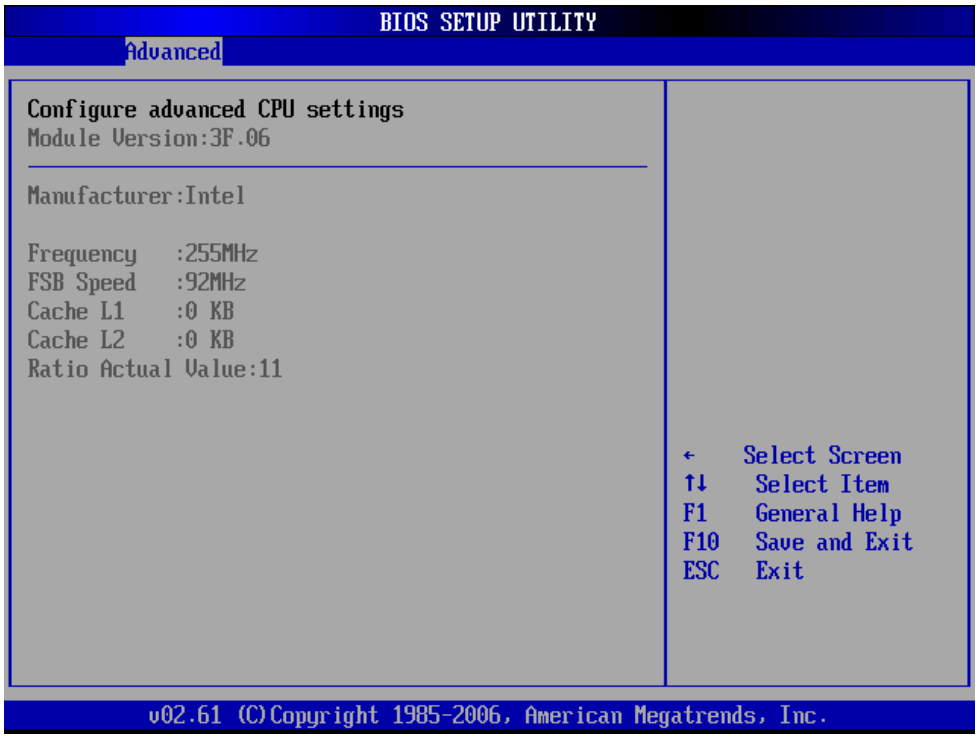
- USB Configuration (see **Section 6.3.9**)
- Power Configuration (see **Section 6.3.10**)



BIOS Menu 2: Advanced

6.3.1 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 3**) to view detailed CPU specifications and configure the CPU.



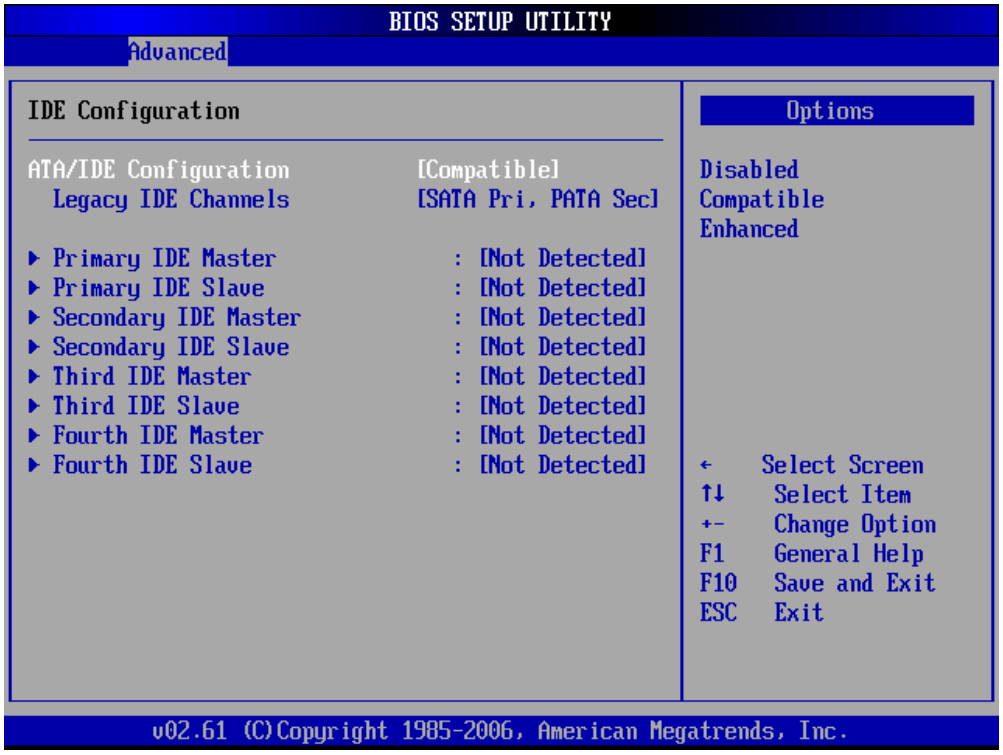
BIOS Menu 3: CPU Configuration

The CPU Configuration menu (**BIOS Menu 3**) lists the following CPU details:

- **Manufacturer**: Lists the name of the CPU manufacturer
- **Brand String**: Lists the brand name of the CPU being used
- **Frequency:** Lists the CPU processing speed
- **FSB Speed**: Lists the FSB speed
- **Cache L1**: Lists the CPU L1 cache size
- **Cache L2**: Lists the CPU L2 cache size

6.3.2 IDE Configuration

Use the **IDE Configuration** menu (**BIOS Menu 4**) to change and/or set the configuration of the IDE devices installed in the system.



BIOS Menu 4: IDE Configuration

➔ **ATA/IDE Configurations [Compatible]**

Use the **ATA/IDE Configurations** option to configure the ATA/IDE controller.

➔ **Disabled** Disables the on-board ATA/IDE controller.

➔ **Compatible** **DEFAULT** Configures the on-board ATA/IDE controller to be in compatible mode. In this mode, a SATA channel will replace one of the IDE channels. This mode supports up to 4 storage devices.

➔ **Enhanced** Configures the on-board ATA/IDE controller to be in Enhanced mode. In this mode, IDE channels and SATA channels are separated. This mode supports up to 6 storage devices. Some legacy OS do not support this mode.

➔ **Legacy IDE Channels [SATA Pri, PATA Sec]**

- ➔ **SATA Only**
- ➔ **SATA Pri., PATA Sec** **DEFAULT**
- ➔ **PATA Only**

➔ **IDE Master and IDE Slave**

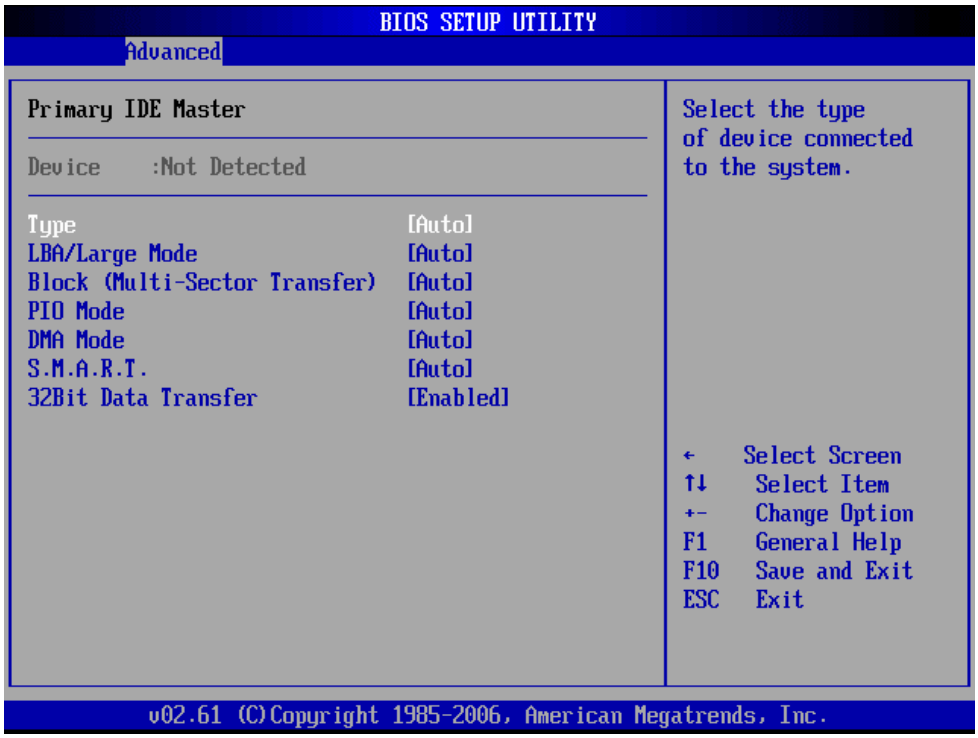
When entering setup, BIOS auto detects the presence of IDE devices. BIOS displays the status of the auto detected IDE devices. The following IDE devices are detected and are shown in the **IDE Configuration** menu:

- Primary IDE Master
- Primary IDE Slave
- Secondary IDE Master
- Secondary IDE Slave
- Third IDE Master
- Third IDE Slave
- Fourth IDE Master
- Fourth IDE Slave

The **IDE Configuration** menu (**BIOS Menu 4**) allows changes to the configurations for the IDE devices installed in the system. If an IDE device is detected, and one of the above listed four BIOS configuration options are selected, the IDE configuration options shown in **Section 6.3.2.1** appear.

6.3.2.1 IDE Master, IDE Slave

Use the **IDE Master** and **IDE Slave** configuration menu to view both primary and secondary IDE device details and configure the IDE devices connected to the system.



BIOS Menu 5: IDE Master and IDE Slave Configuration

➔ **Type [Auto]**

Use the **Type** BIOS option select the type of device the AMIBIOS attempts to boot from after the Power-On Self-Test (POST) is complete.

➔ **Not Installed** BIOS is prevented from searching for an IDE disk drive on the specified channel.

➔ **Auto** **DEFAULT** The BIOS auto detects the IDE disk drive type attached to the specified channel. This setting should be used if an IDE hard disk drive is attached to the specified channel.

➔ **CD/DVD** The CD/DVD option specifies that an IDE CD-ROM drive is attached to the specified IDE channel. The BIOS does not attempt to search for other types of

IDE disk drives on the specified channel.

➔ **ARMD** This option specifies an ATAPI Removable Media Device. These include, but are not limited to:

- ➔ **ZIP**
- ➔ **LS-120**

➔ **LBA/Large Mode [Auto]**

Use the **LBA/Large Mode** option to disable or enable BIOS to auto detects LBA (Logical Block Addressing). LBA is a method of addressing data on a disk drive. In LBA mode, the maximum drive capacity is 137 GB.

➔ **Disabled** BIOS is prevented from using the LBA mode control on the specified channel.

➔ **Auto** **DEFAULT** BIOS auto detects the LBA mode control on the specified channel.

➔ **Block (Multi Sector Transfer) [Auto]**

Use the **Block (Multi Sector Transfer)** to disable or enable BIOS to auto detect if the device supports multi-sector transfers.

➔ **Disabled** BIOS is prevented from using Multi-Sector Transfer on the specified channel. The data to and from the device occurs one sector at a time.

➔ **Auto** **DEFAULT** BIOS auto detects Multi-Sector Transfer support on the drive on the specified channel. If supported the data transfer to and from the device occurs multiple sectors at a time.

➔ **PIO Mode [Auto]**

Use the **PIO Mode** option to select the IDE PIO (Programmable I/O) mode program timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases.

➔ **Auto**	**DEFAULT**	BIOS auto detects the PIO mode. Use this value if the IDE disk drive support cannot be determined.
➔ **0**		PIO mode 0 selected with a maximum transfer rate of 3.3MBps
➔ **1**		PIO mode 1 selected with a maximum transfer rate of 5.2MBps
➔ **2**		PIO mode 2 selected with a maximum transfer rate of 8.3MBps
➔ **3**		PIO mode 3 selected with a maximum transfer rate of 11.1MBps
➔ **4**		PIO mode 4 selected with a maximum transfer rate of 16.6MBps (This setting generally works with all hard disk drives manufactured after 1999. For other disk drives, such as IDE CD-ROM drives, check the specifications of the drive.)

➔ **DMA Mode [Auto]**

Use the **DMA Mode** BIOS selection to adjust the DMA mode options.

➔ **Auto**	**DEFAULT**	BIOS auto detects the DMA mode. Use this value if the IDE disk drive support cannot be determined.
➔ **SWDMA0**		Single Word DMA mode 0 selected with a maximum data transfer rate of 2.1MBps
➔ **SWDMA1**		Single Word DMA mode 1 selected with a maximum data transfer rate of 4.2MBps
➔ **SWDMA2**		Single Word DMA mode 2 selected with a maximum data transfer rate of 8.3MBps

- **MWDMA0** Multi Word DMA mode 0 selected with a maximum data transfer rate of 4.2MBps
- **MWDMA1** Multi Word DMA mode 1 selected with a maximum data transfer rate of 13.3MBps
- **MWDMA2** Multi Word DMA mode 2 selected with a maximum data transfer rate of 16.6MBps
- **UDMA1** Ultra DMA mode 0 selected with a maximum data transfer rate of 16.6MBps
- **UDMA1** Ultra DMA mode 1 selected with a maximum data transfer rate of 25MBps
- **UDMA2** Ultra DMA mode 2 selected with a maximum data transfer rate of 33.3MBps
- **UDMA3** Ultra DMA mode 3 selected with a maximum data transfer rate of 44MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)
- **UDMA4** Ultra DMA mode 4 selected with a maximum data transfer rate of 66.6MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)
- **UDMA5** Ultra DMA mode 5 selected with a maximum data transfer rate of 99.9MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)

➔ **S.M.A.R.T [Auto]**

Use the **S.M.A.R.T** option to auto-detect, disable or enable Self-Monitoring Analysis and Reporting Technology (SMART) on the drive on the specified channel. **S.M.A.R.T** predicts impending drive failures. The **S.M.A.R.T** BIOS option enables or disables this function.

➔ **Auto** **DEFAULT** BIOS auto detects HDD SMART support.

➔ **Disabled** Prevents BIOS from using the HDD SMART feature.

➔ **Enabled** Allows BIOS to use the HDD SMART feature

➔ **32Bit Data Transfer [Enabled]**

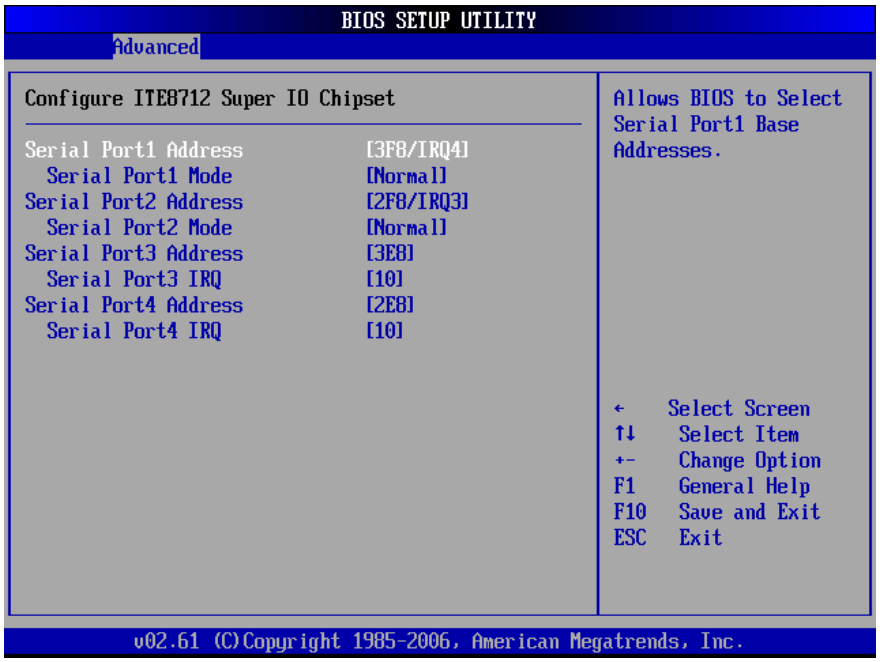
Use the **32Bit Data Transfer** BIOS option to enables or disable 32-bit data transfers.

➔ **Disabled** Prevents the BIOS from using 32-bit data transfers.

➔ **Enabled** **DEFAULT** Allows BIOS to use 32-bit data transfers on supported hard disk drives.

6.3.3 Super IO Configuration

Use the **Super IO Configuration** menu (**BIOS Menu 6**) to set or change the configurations for the FDD controllers, parallel ports and serial ports.



BIOS Menu 6: Super IO Configuration

➔ **Serial Port1 Address [3F8/IRQ4]**

Use the **Serial Port1 Address** option to select the Serial Port 1 base address.

➔ **Disabled**		No base address is assigned to Serial Port 1
➔ **3F8/IRQ4**	**DEFAULT**	Serial Port 1 I/O port address is 3F8 and the interrupt address is IRQ4
➔ **3E8/IRQ4**		Serial Port 1 I/O port address is 3E8 and the interrupt address is IRQ4
➔ **2E8/IRQ3**		Serial Port 1 I/O port address is 2E8 and the interrupt address is IRQ3

➔ **Serial Port1 Mode [Normal]**

Use the **Serial Port1 Mode** option to select the transmitting and receiving mode for the first serial port.

➔ **Normal**	**DEFAULT**	Serial Port 1 mode is normal
➔ **IrDA**		Serial Port 1 mode is IrDA
➔ **ASK IR**		Serial Port 1 mode is ASK IR

➔ **Serial Port2 Address [2F8/IRQ3]**

Use the **Serial Port2 Address** option to select the Serial Port 2 base address.

➔ **Disabled**		No base address is assigned to Serial Port 2
➔ **2F8/IRQ3**	**DEFAULT**	Serial Port 2 I/O port address is 3F8 and the interrupt address is IRQ3
➔ **3E8/IRQ4**		Serial Port 2 I/O port address is 3E8 and the interrupt address is IRQ4

➔ **2E8/IRQ3** Serial Port 2 I/O port address is 2E8 and the interrupt address is IRQ3

➔ **Serial Port2 Mode [Normal]**

Use the **Serial Port2 Mode** option to select the Serial Port2 operational mode.

➔ **Normal** **DEFAULT** Serial Port 2 mode is normal

➔ **IrDA** Serial Port 2 mode is IrDA

➔ **ASK IR** Serial Port 2 mode is ASK IR

➔ **Serial Port3 Address [3E8]**

Use the **Serial Port3 Address** option to select the base addresses for serial port 3

➔ **Disabled** No base address is assigned to serial port 3

➔ **3F8** Serial port 3 I/O port address is 3F8

➔ **2F8** Serial port 3 I/O port address is 2F8

➔ **3E8** **DEFAULT** Serial port 3 I/O port address is 3E8

➔ **2E8** Serial port 3 I/O port address is 2E8

➔ **Serial Port3 IRQ [10]**

Use the **Serial Port3 IRQ** option to select the interrupt address for serial port 3.

➔ **10** **DEFAULT** Serial port 3 IRQ address is 10

➔ **Serial Port4 Address [2E8]**

Use the **Serial Port4 IRQ** option to select the interrupt address for serial port 4.

➔ **Disabled** No base address is assigned to serial port 3

➔ **3F8** Serial port 4 I/O port address is 3F8

➔ **2F8** Serial port 4 I/O port address is 2F8

➔ **3E8** Serial port 4 I/O port address is 3E8

➔ **2E8** **DEFAULT** Serial port 4 I/O port address is 2E8

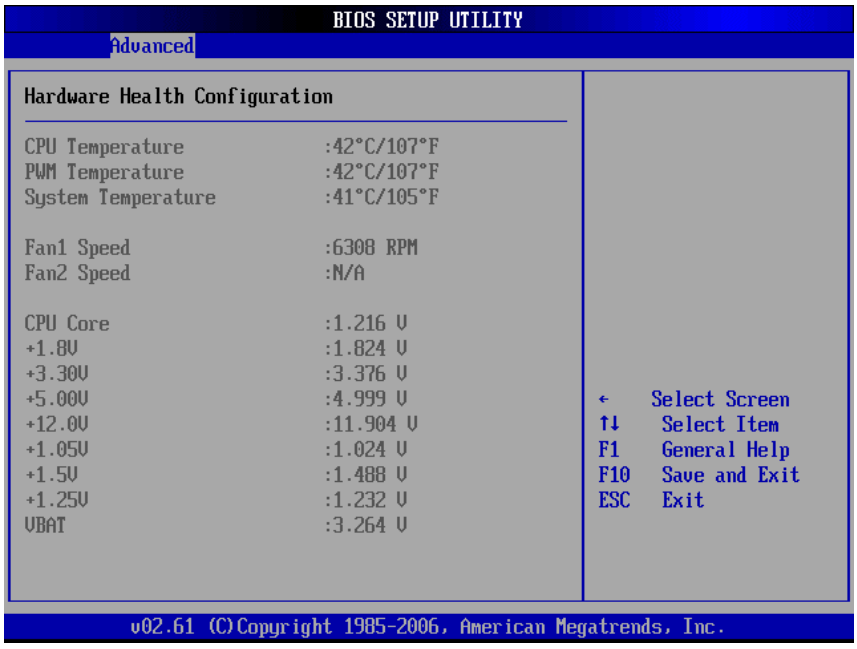
➔ **Serial Port4 IRQ [10]**

Use the **Serial Port4 IRQ** option to select the interrupt address for serial port 4.

➔ **10** **DEFAULT** Serial port 4 IRQ address is 10

6.3.4 Hardware Health Configuration

The **Hardware Health Configuration** menu (**BIOS Menu 7**) shows the operating temperature, fan speeds and system voltages.



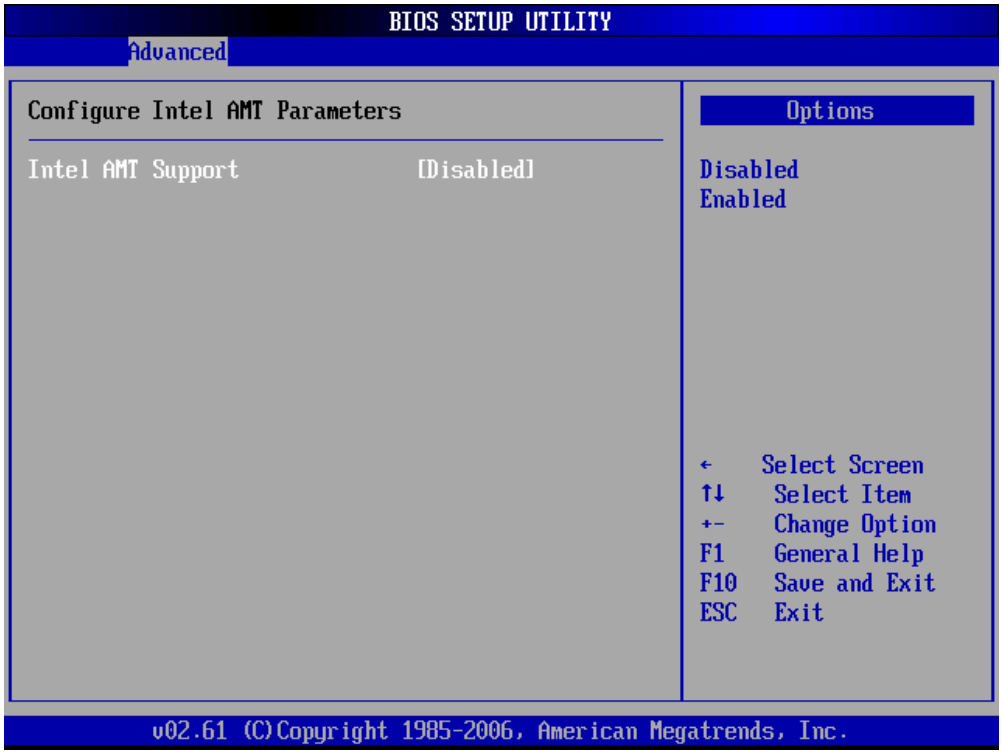
BIOS Menu 7: Hardware Health Configuration

The following system parameters and values are shown. The system parameters that are monitored are:

- **System Temperatures**: The following system temperatures are monitored
  - CPU Temperature
  - PWM Temperature
  - System Temperature
- **Fan Speeds**: The CPU cooling fan speed is monitored.
  - Fan1 Speed
  - Fan2 Speed
- **Voltages**: The following system voltages are monitored
  - CPU Core
  - +1.8V
  - +3.30V
  - +5.00V
  - +12.0V
  - +1.05V
  - +1.5V
  - +1.25V
  - VBAT

6.3.5 Intel AMT Configuration

The **Intel AMT Configuration** menu (**BIOS Menu 8**) configures the Intel® Active Management Technology (AMT) options.



BIOS Menu 8: Intel AMT Configuration

➔ **Intel AMT Support [Disabled]**

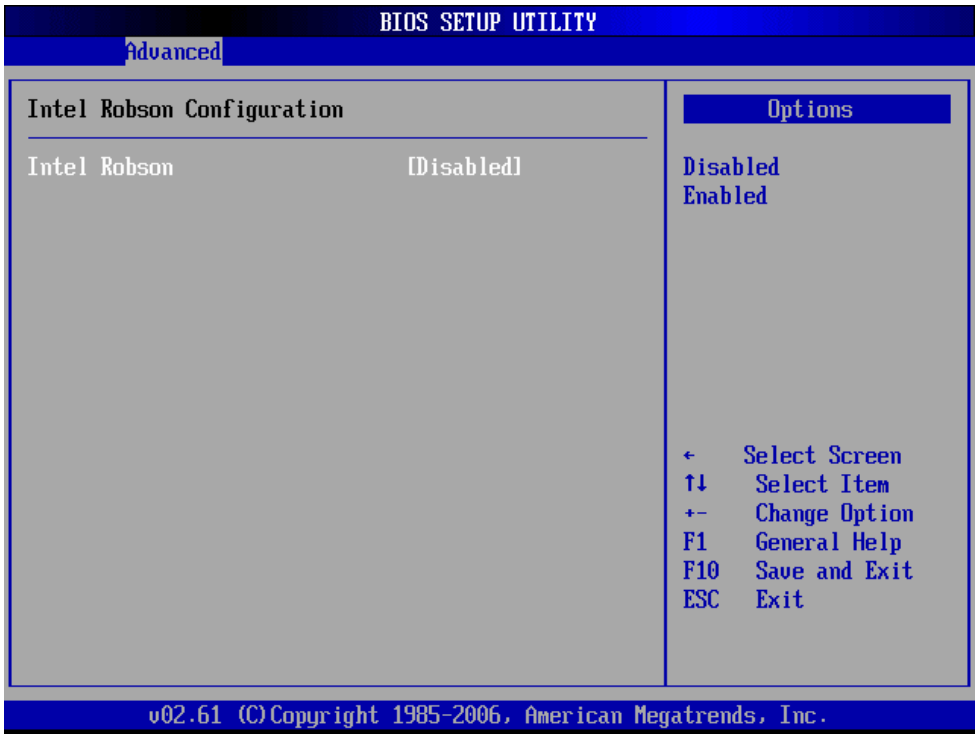
Use the **Intel AMT Support** option to enable or disable the Intel AMT support.

➔ **Disabled** **DEFAULT** The Intel® AMT function is disabled.

➔ **Enabled** The Intel® AMT function is enabled.

6.3.6 Intel Robson Configuration

The **Intel Robson Configuration** menu (**BIOS Menu 9**) allows the Intel® Robson Technology option to be configured.



BIOS Menu 9: Intel Robson Configuration

➔ **Intel Robson [Disabled]**

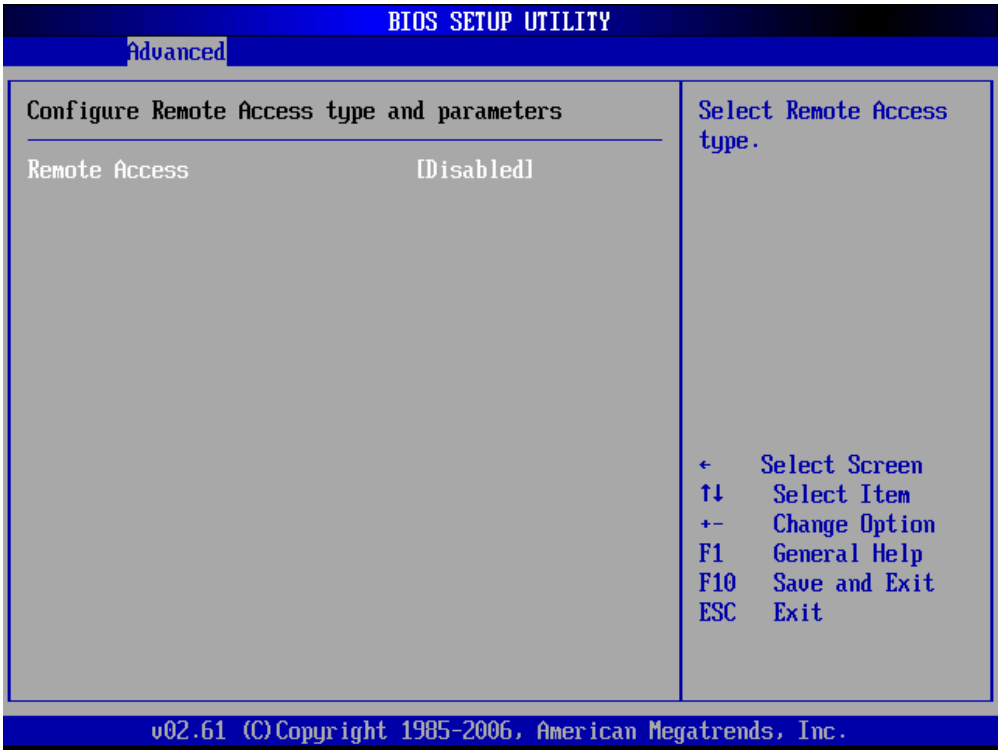
Use the **Intel Robson** BIOS option to enable or disable the Intel® Robson Technology feature. Intel® Robson, Intel® Turbo Memory, is a technology introduced by Intel® to boost a computer startup process.

➔ **Disabled** **DEFAULT** Disables the Intel® Robson feature

➔ **Enabled** Enables the Intel® Robson feature

6.3.7 Remote Access Configuration

Use the **Remote Access Configuration** menu (**BIOS Menu 10**) to configure remote access parameters. The **Remote Access Configuration** is an AMIBIOS feature and allows a remote host running a terminal program to display and configure the BIOS settings.



BIOS Menu 10: Remote Access Configuration [Advanced]

➔ **Remote Access [Disabled]**

Use the **Remote Access** option to enable or disable access to the remote functionalities of the system.

➔ **Disabled** **DEFAULT** Remote access is disabled.

➔ **Enabled** Remote access configuration options shown below appear:

- ➔ **Serial Port Number**
- ➔ **Serial Port Mode**
- ➔ **Redirection after BIOS POST**
- ➔ **Terminal Type**

These configuration options are discussed below.

➔ **Serial Port Number [COM1]**

Use the **Serial Port Number** option allows users to select the serial port used for remote access.

➔ **COM1**	**DEFAULT**	System is remotely accessed through COM1
➔ **COM2**		System is remotely accessed through COM2
➔ **COM3**		System is remotely accessed through COM3
➔ **COM4**		System is remotely accessed through COM4
➔ **COM5**		System is remotely accessed through COM5

NOTE: Make sure the selected COM port is enabled through the Super I/O configuration menu.

➔ **Base Address, IRQ [3F8h,4]**

The **Base Address, IRQ** option cannot be configured and only shows the interrupt address of the serial port listed above.

➔ **Serial Port Mode [115200 8,n,1]**

Use the **Serial Port Mode** option to select baud rate through which the console redirection is made. The following configuration options are available

- 115200 8,n,1 **DEFAULT**
- 57600 8,n,1
- 38400 8,n,1
- 19200 8,n,1
- 09600 8,n,1

NOTE:

Identical baud rate setting musts be set on the host (a management computer running a terminal software) and the slave

➔ **Redirection After BIOS POST [Always]**

Use the **Redirection After BIOS POST** option to specify when console redirection should occur.

➔ **Disabled**		The console is not redirected after POST
➔ **Boot Loader**		Redirection is active during POST and during Boot Loader
➔ **Always**	**DEFAULT**	Redirection is always active (Some OSes may not work if set to Always)

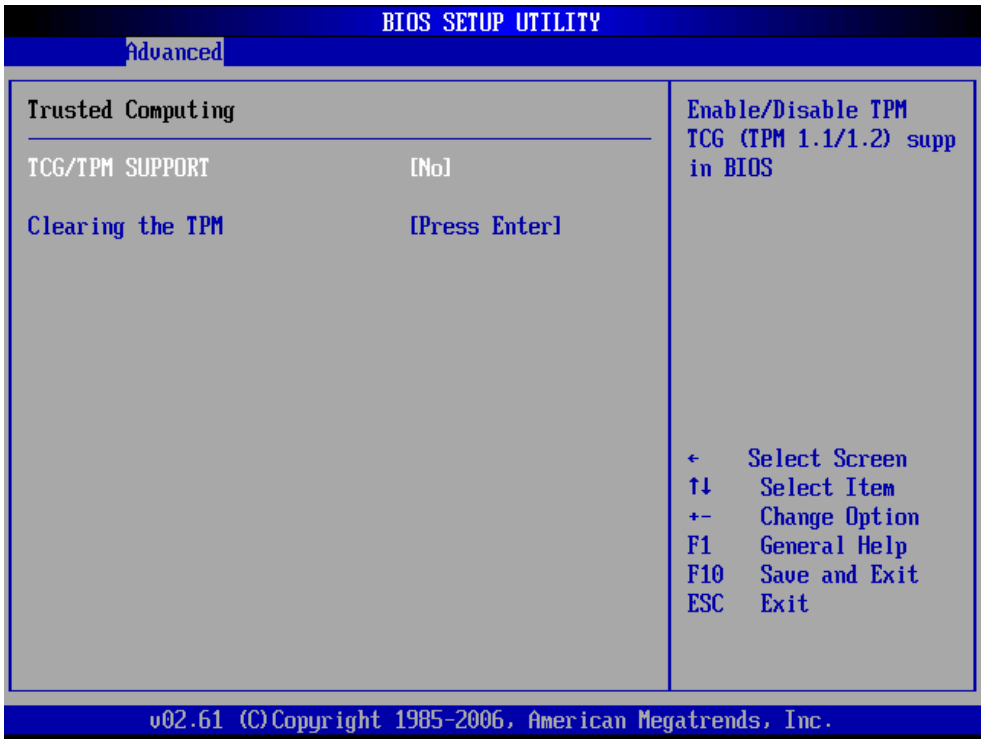
➔ **Terminal Type [ANSI]**

Use the **Terminal Type** BIOS option to specify the remote terminal type.

➔ **ANSI**	**DEFAULT**	The target terminal type is ANSI
➔ **VT100**		The target terminal type is VT100
➔ **VT-UTF8**		The target terminal type is VT-UTF8

6.3.8 Trusted Computing

Use the **Trusted Computing** menu (**BIOS Menu 11**) to configure settings related to the Trusted Computing Group (TCG) Trusted Platform Module (TPM).



BIOS Menu 11: Trusted Computing

➔ **TCG/TPM Support [No]**

Use the **TCG/TPM Support** option to configure support for the TPM.

➔ **No** **DEFAULT** TPM support is disabled.

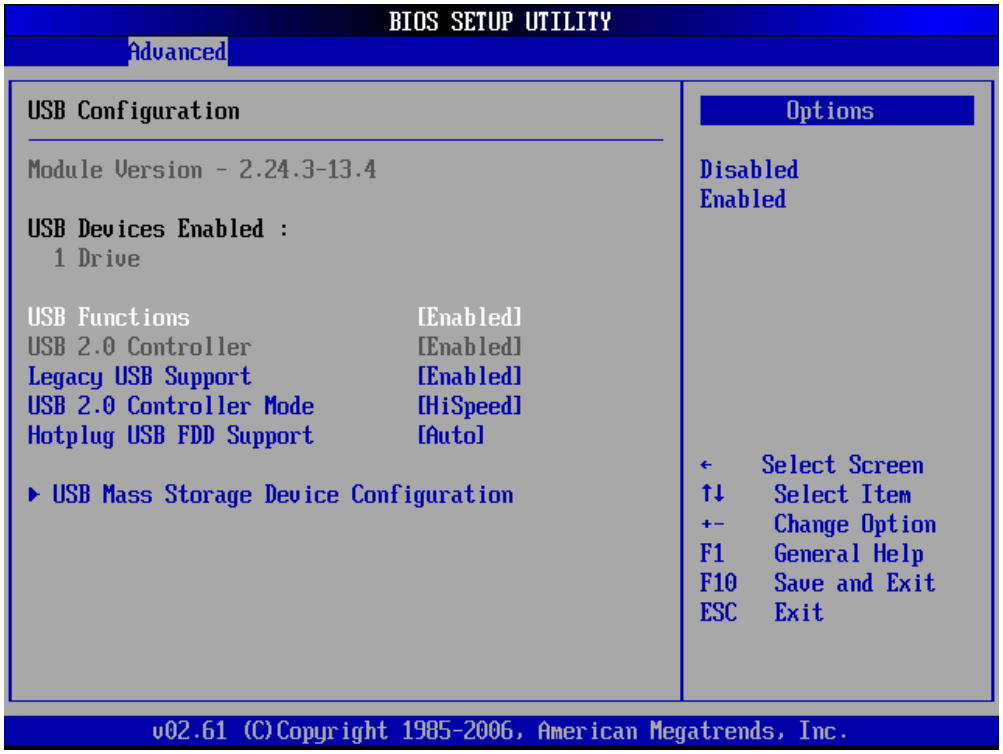
➔ **Yes** TPM support is enabled.

➔ **Clearing the TPM [Press Enter]**

Use the **Clearing the TPM** option to clear the information stored in the TPM.

6.3.9 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 12**) to read USB configuration information and configure the USB settings.



BIOS Menu 12: USB Configuration

➔ USB Configuration

The **USB Configuration** field shows the system USB configuration. The items listed are:

- Module Version: x.xxxxx.xxxxx

➔ USB Devices Enabled

The **USB Devices Enabled** field lists the USB devices that are enabled on the system

➔ USB Function [Enabled]

Use the **USB Function** BIOS option to enable or disable the USB function.

➔ **Disabled**		USB function support disabled
➔ **Enabled**	**DEFAULT**	USB function support enabled

➔ **Legacy USB Support [Enabled]**

Use the **Legacy USB Support** BIOS option to enable USB mouse and USB keyboard support.

Normally if this option is not enabled, any attached USB mouse or USB keyboard does not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB driver loaded onto the system.

➔ **Disabled**		Legacy USB support disabled
➔ **Enabled**	**DEFAULT**	Legacy USB support enabled
➔ **Auto**		Legacy USB support disabled if no USB devices are connected

➔ **USB2.0 Controller Mode [HiSpeed]**

Use the **USB2.0 Controller Mode** option to set the speed of the USB2.0 controller.

➔ **FullSpeed**		The controller is capable of operating at 12Mb/s
➔ **HiSpeed**	**DEFAULT**	The controller is capable of operating at 480Mb/s

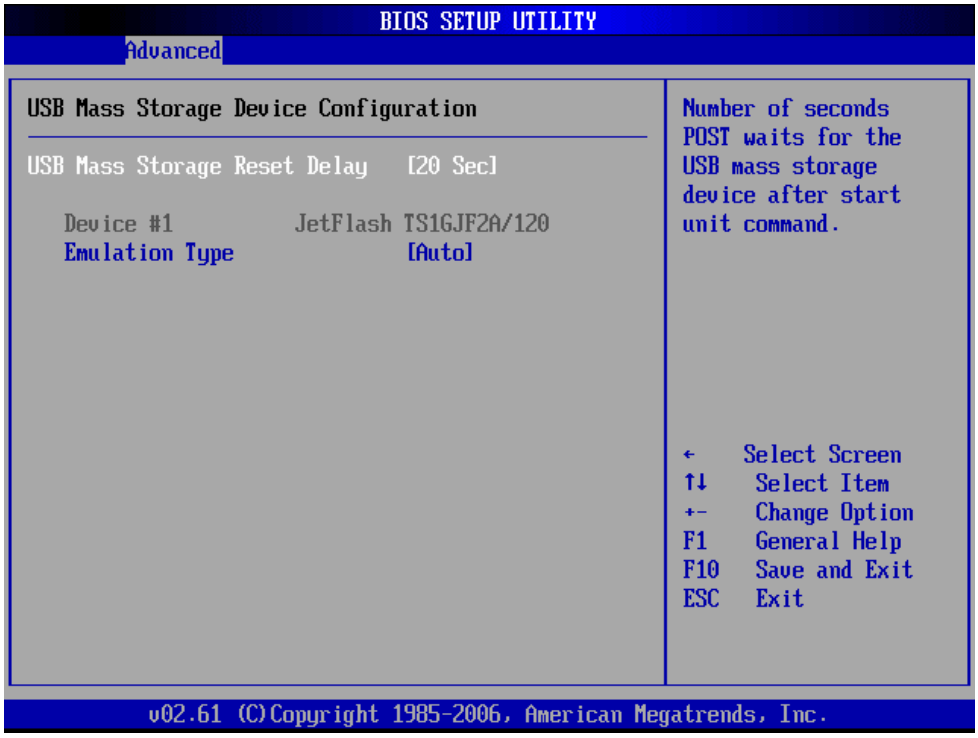
➔ **Hotplug USB FDD Support [Auto]**

Use the **Hotplug USB FDD Support** option to enable or disable USB FDD support.

➔ **Disabled**		Hot-plug USB FDD support disabled.
➔ **Enabled**	**DEFAULT**	A virtual FDD drive is created and will be associated with the hotplugged FDD later.
➔ **Auto**		A virtual FDD drive is created only if there is no USB FDD present.

6.3.9.1 USB Mass Storage Device Configuration

Use the **USB Mass Storage Device Configuration** menu (**BIOS Menu 13**) to configure USB mass storage class devices.


BIOS SETUP UTILITY
Advanced
USB Mass Storage Device Configuration
USB Mass Storage Reset Delay [20 Sec]
Device #1 JetFlash TS1GJF2A/120
Emulation Type [Auto]
Number of seconds POST waits for the USB mass storage device after start unit command.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 13: USB Mass Storage Device Configuration

➔ **USB Mass Storage Reset Delay [20 Sec]**

Use the **USB Mass Storage Reset Delay** option to set the number of seconds POST waits for the USB mass storage device after the start unit command.

➔ **10 Sec**		POST waits 10 seconds for the USB mass storage device after the start unit command.
➔ **20 Sec**	**DEFAULT**	POST waits 20 seconds for the USB mass storage device after the start unit command.
➔ **30 Sec**		POST waits 30 seconds for the USB mass storage

device after the start unit command.

➔ **40 Sec** POST waits 40 seconds for the USB mass storage device after the start unit command.

➔ **Device ##**

The **Device##** field lists the USB devices that are connected to the system.

➔ **Emulation Type [Auto]**

Use the **Emulation Type** BIOS option to specify the type of emulation BIOS has to provide for the USB device.

NOTE:

Please note that the device's formatted type and the emulation type provided by the BIOS must match for a device to boot properly. If both types do not match then device's behavior is undefined. To make sure both types match, format the device using BIOS INT13h calls after selecting the proper emulation option in BIOS setup. The FORMAT utility provided by Microsoft® MS-DOS®, Microsoft® Windows® 95, and Microsoft® Windows® 98 can be used for this purpose.

➔ **Auto** **DEFAULT** BIOS auto-detects the current USB.

➔ **Floppy** The USB device will be emulated as a floppy drive. The device can be either A: or B: responding to INT13h calls that return DL = 0 or DL = 1 respectively.

➔ **Forced FDD** Allows a hard disk image to be connected as a

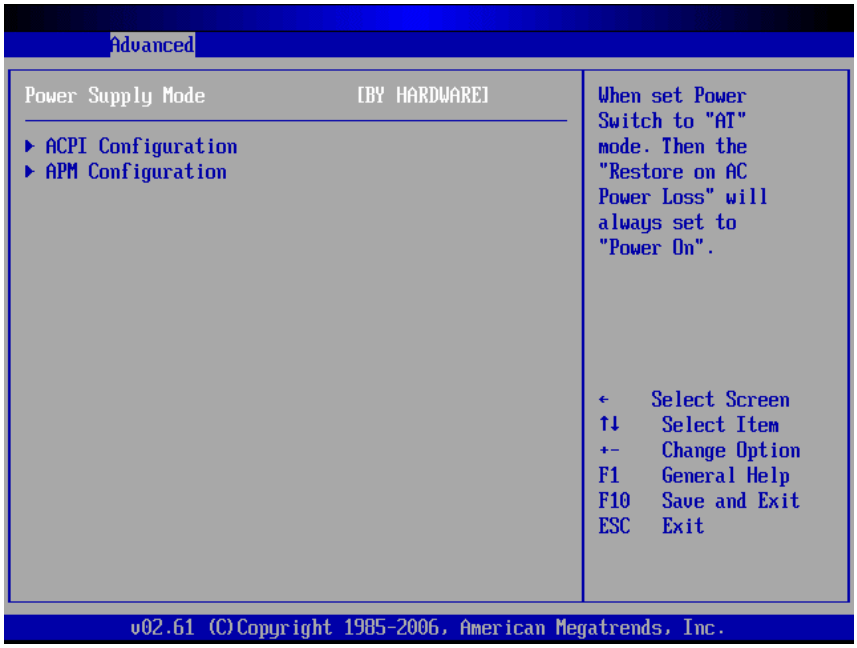
floppy image. This option works only for drives formatted with FAT12, FAT16 or FAT32.

➔ **Hard Disk** Allows the USB device to be emulated as hard disk responding to INT13h calls that return DL values of 80h or above.

➔ **CDROM** Assumes the CD-ROM is formatted as bootable media. All the devices that support block sizes greater than 512 bytes can only be booted using this option.

6.3.10 Power Configuration

Use the **Power Configuration** menu (**BIOS Menu 14**) configures the Advanced Configuration and Power Interface (ACPI) and Power Management (APM) options.


Advanced
Power Supply Mode [BY HARDWARE]
ACPI Configuration
APM Configuration
When set Power Switch to "AT" mode. Then the "Restore on AC Power Loss" will always set to "Power On".
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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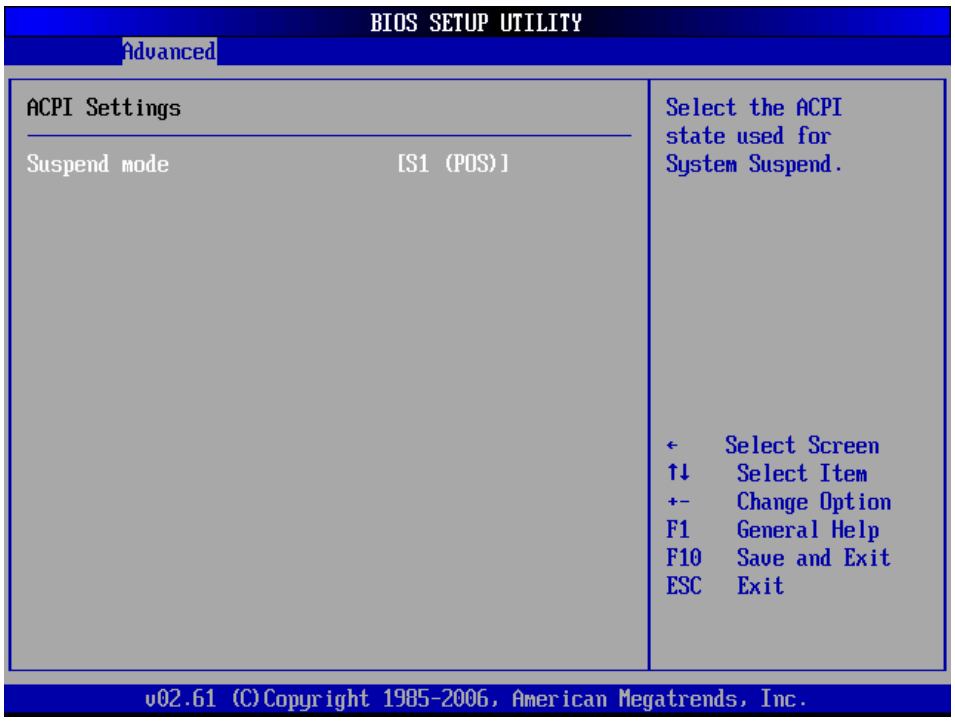
BIOS Menu 14: Power Configuration

6.3.10.1 ACPI Configuration

The **ACPI Configuration** menu (**BIOS Menu 8**) configures the Advanced Configuration and Power Interface (ACPI) option.



BIOS Menu 15: ACPI Configuration [Advanced\ Power Configuration]

➔ **Suspend Mode [S1(POS)]**

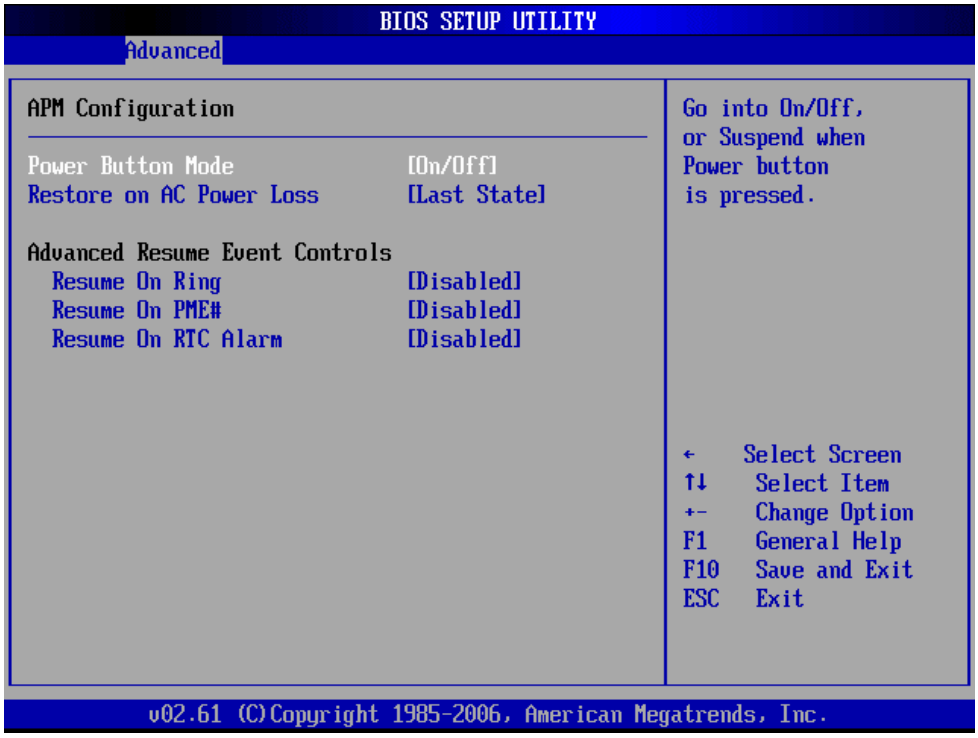
Use the **Suspend Mode** option to specify the sleep state the system enters when it is not being used.

➔ **S1 (POS)** **DEFAULT** The system enters S1(POS) sleep state. The system appears off. The CPU is stopped; RAM is refreshed; the system is running in a low power mode.

➔ **S3 (STR)** System appears off. The CPU has no power; RAM is in slow refresh; the power supply is in a reduced power mode.

6.3.11 APM Configuration

The **APM Configuration** menu (**BIOS Menu 9**) allows the advanced power management options to be configured.


BIOS SETUP UTILITY
Advanced
APM Configuration
Power Button Mode [On/Off]
Restore on AC Power Loss [Last State]
Advanced Resume Event Controls
Resume On Ring [Disabled]
Resume On PME# [Disabled]
Resume On RTC Alarm [Disabled]
Go into On/Off, or Suspend when Power button is pressed.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 16:Advanced Power Management Configuration

➔ **Power Button Mode [On/Off]**

Use the **Power Button Mode** BIOS to specify how the power button functions.

➔ **On/Off** **DEFAULT** When the power button is pressed the system is either turned on or off

➔ **Suspend** When the power button is pressed the system goes into suspend mode

➔ **Restore on AC Power Loss [Last State]**

Use the **Restore on AC Power Loss** BIOS option to specify what state the system returns to if there is a sudden loss of power to the system.

➔ **Power Off**		The system remains turned off
➔ **Power On**		The system turns on
➔ **Last State**	**DEFAULT**	The system returns to its previous state. If it was on, it turns itself on. If it was off, it remains off.

➔ **Resume on Ring [Disabled]**

Use the **Resume on Ring** BIOS option to enable activity on the RI (ring in) modem line to rouse the system from a suspend or standby state. That is, the system will be roused by an incoming call on a modem.

➔ **Disabled**	**DEFAULT**	Wake event not generated by an incoming call
➔ **Enabled**		Wake event generated by an incoming call

➔ **Resume on PME# [Disabled]**

Use the **Resume on PME#** BIOS option to enable activity on the PCI PME (power management event) controller to rouse the system from a suspend or standby state.

➔ **Disabled**	**DEFAULT**	Wake event not generated by PCI PME controller activity
➔ **Enabled**		Wake event generated by PCI PME controller activity

➔ **Resume On RTC Alarm [Disabled]**

Use the **Resume On RTC Alarm** option to specify the time the system should be roused from a suspended state.

➔ **Disabled** **DEFAULT** The real time clock (RTC) cannot generate a wake event

➔ **Enabled** If selected, the following appears with values that can be selected:

- ➔ **RTC Alarm Date (Days)**
- ➔ **RTC Alarm Time**

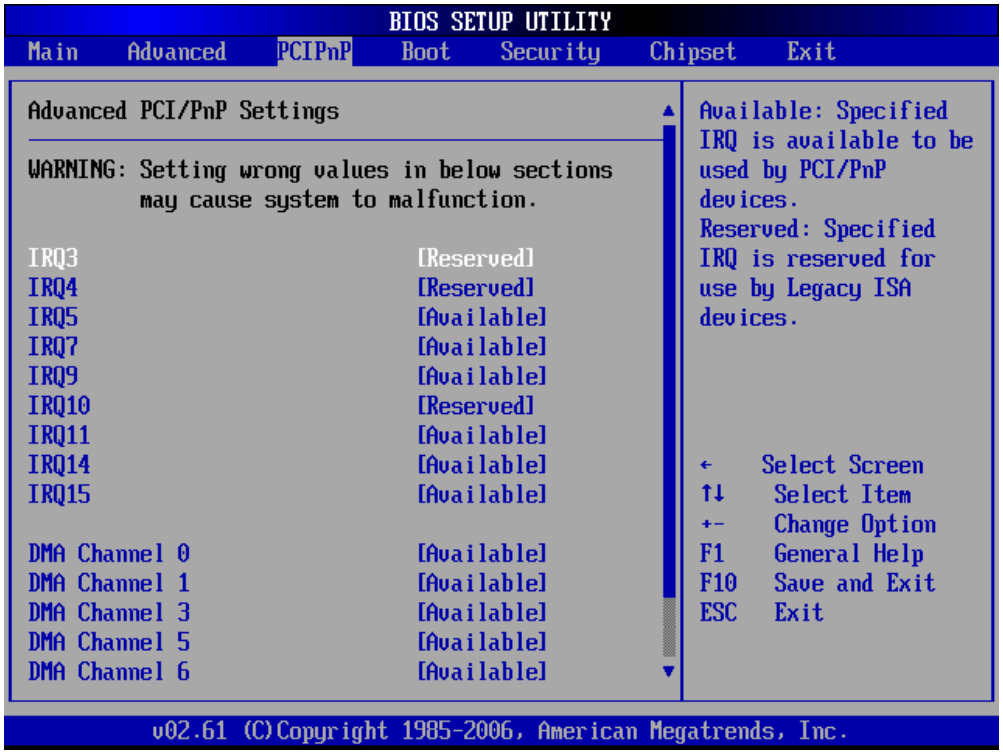
After setting the alarm, the computer turns itself on from a suspend state when the alarm goes off.

6.4 PCI/PnP

Use the **PCI/PnP** menu (**BIOS Menu 17**) to configure advanced PCI and PnP settings.

WARNING!

Setting wrong values for the BIOS selections in the PCIPnP BIOS menu may cause the system to malfunction.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Advanced PCI/PnP Settings
WARNING: Setting wrong values in below sections may cause system to malfunction.
IRQ3 [Reserved]
IRQ4 [Reserved]
IRQ5 [Available]
IRQ7 [Available]
IRQ9 [Available]
IRQ10 [Reserved]
IRQ11 [Available]
IRQ14 [Available]
IRQ15 [Available]
DMA Channel 0 [Available]
DMA Channel 1 [Available]
DMA Channel 3 [Available]
DMA Channel 5 [Available]
DMA Channel 6 [Available]
Available: Specified IRQ is available to be used by PCI/PnP devices.
Reserved: Specified IRQ is reserved for use by Legacy ISA devices.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 17: PCI/PnP Configuration

➔ **IRQ#**

Use the **IRQ#** address to specify what IRQs can be assigned to a particular peripheral device.

➔ **Available** The specified IRQ is available to be used by PCI/PnP devices

➔ **Reserved** The specified IRQ is reserved for use by Legacy ISA devices

Available IRQ addresses options are:

- IRQ3
- IRQ4
- IRQ5
- IRQ7

- IRQ9
- IRQ10
- IRQ 11
- IRQ 14
- IRQ 15

➔ **DMA Channel# [Available]**

Use the **DMA Channel#** option to assign a specific DMA channel to a particular PCI/PnP device.

➔ **Available**	**DEFAULT**	The specified DMA is available to be used by PCI/PnP devices
➔ **Reserved**		The specified DMA is reserved for use by Legacy ISA devices

Available DMA Channels are:

- DM Channel 0
- DM Channel 1
- DM Channel 3
- DM Channel 5
- DM Channel 6
- DM Channel 7

➔ **Reserved Memory Size [Disabled]**

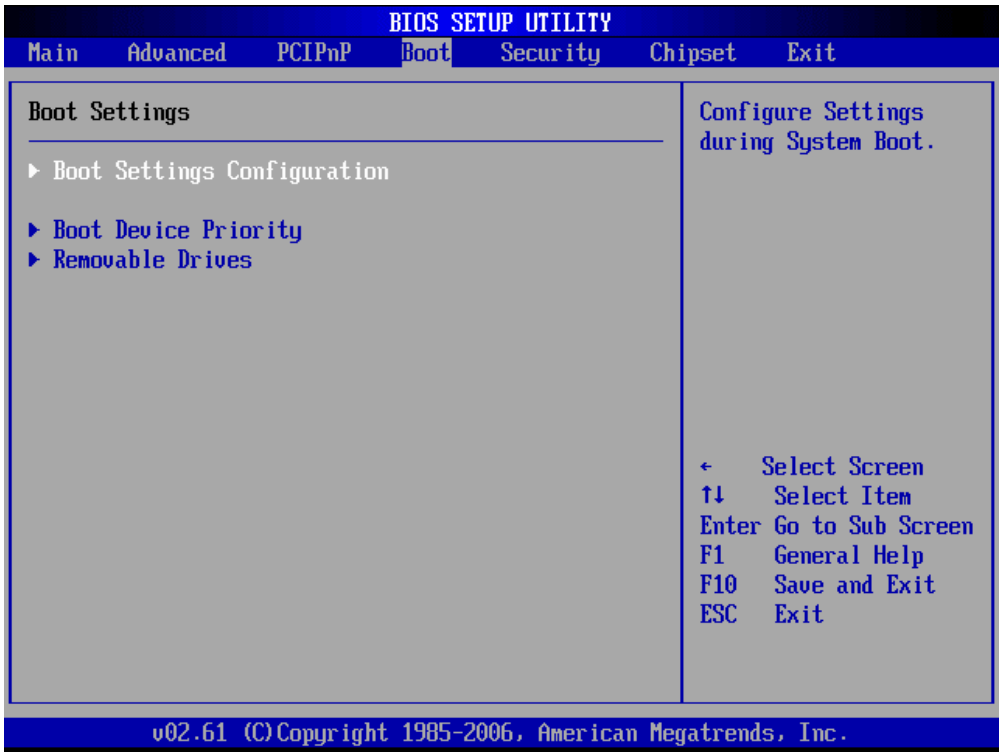
Use the **Reserved Memory Size** BIOS option to specify the amount of memory that should be reserved for legacy ISA devices.

➔ **Disabled**	**DEFAULT**	No memory block reserved for legacy ISA devices
➔ **16K**		16KB reserved for legacy ISA devices
➔ **32K**		32KB reserved for legacy ISA devices

➔ **64K** 54KB reserved for legacy ISA devices

6.5 Boot

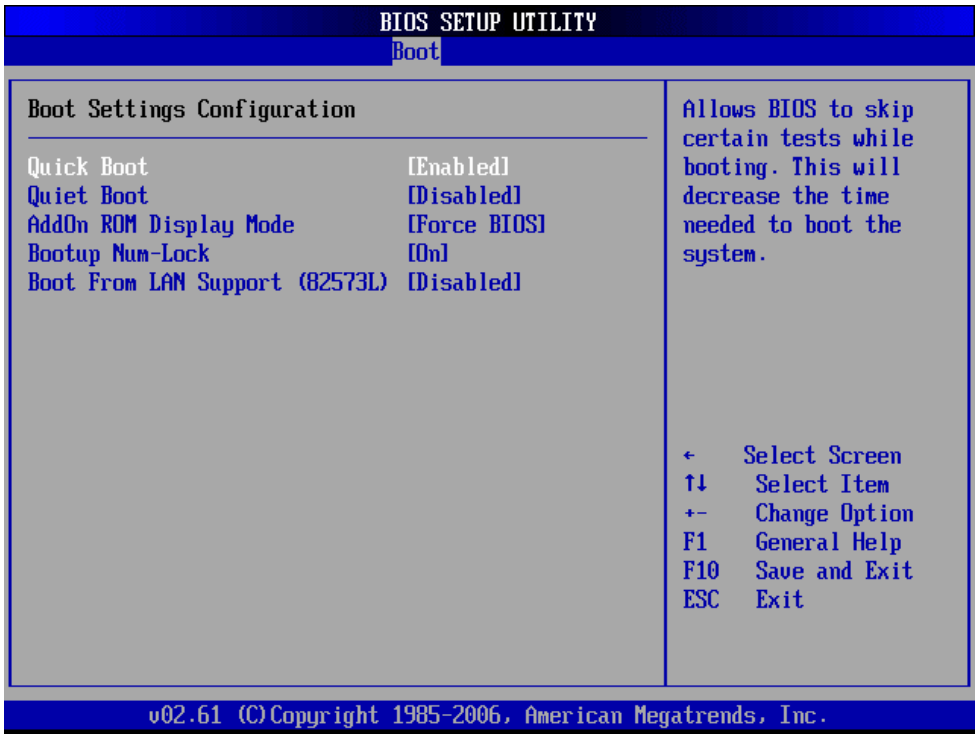
Use the **Boot** menu (**BIOS Menu 18**) to configure system boot options.



BIOS Menu 18: Boot

6.5.1 Boot Settings Configuration

Use the **Boot Settings Configuration** menu (**BIOS Menu 19**) to configure advanced system boot options.


BIOS SETUP UTILITY
Boot
Boot Settings Configuration
Quick Boot [Enabled]
Quiet Boot [Disabled]
AddOn ROM Display Mode [Force BIOS]
Bootup Num-Lock [On]
Boot From LAN Support (82573L) [Disabled]
Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 19: Boot Settings Configuration

➔ **Quick Boot [Enabled]**

Use the **Quick Boot** BIOS option to make the computer speed up the boot process.

➔ **Disabled**		No POST procedures are skipped
➔ **Enabled**	**DEFAULT**	Some POST procedures are skipped to decrease the system boot time

➔ **Quiet Boot [Disabled]**

Use the **Quiet Boot** BIOS option to select the screen display when the system boots.

➔ **Disabled**	**DEFAULT**	Normal POST messages displayed
➔ **Enabled**		OEM Logo displayed instead of POST messages

➔ **AddOn ROM Display Mode [Force BIOS]**

Use the **AddOn ROM Display Mode** option to allow add-on ROM (read-only memory) messages to be displayed.

➔ **Force BIOS**	**DEFAULT**	The system forces third party BIOS to display during system boot.
➔ **Keep Current**		The system displays normal information during system boot.

➔ **Bootup Num-Lock [On]**

Use the **Bootup Num-Lock** BIOS option to specify if the number lock setting must be modified during boot up.

➔ **Off**		Does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard lights up when the Number Lock is engaged.
➔ **On**	**DEFAULT**	Allows the Number Lock on the keyboard to be enabled automatically when the computer system boots up. This allows the immediate use of the 10-key numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard is lit.

➔ **Boot From LAN Support (82573L) [Disabled]**

Use the **BOOT From LAN Support (82573L)** option to enable the Intel® 82573L PCIe GbE controller to boot the system.

➔ **Disabled**	**DEFAULT**	Cannot be booted from a remote system through the

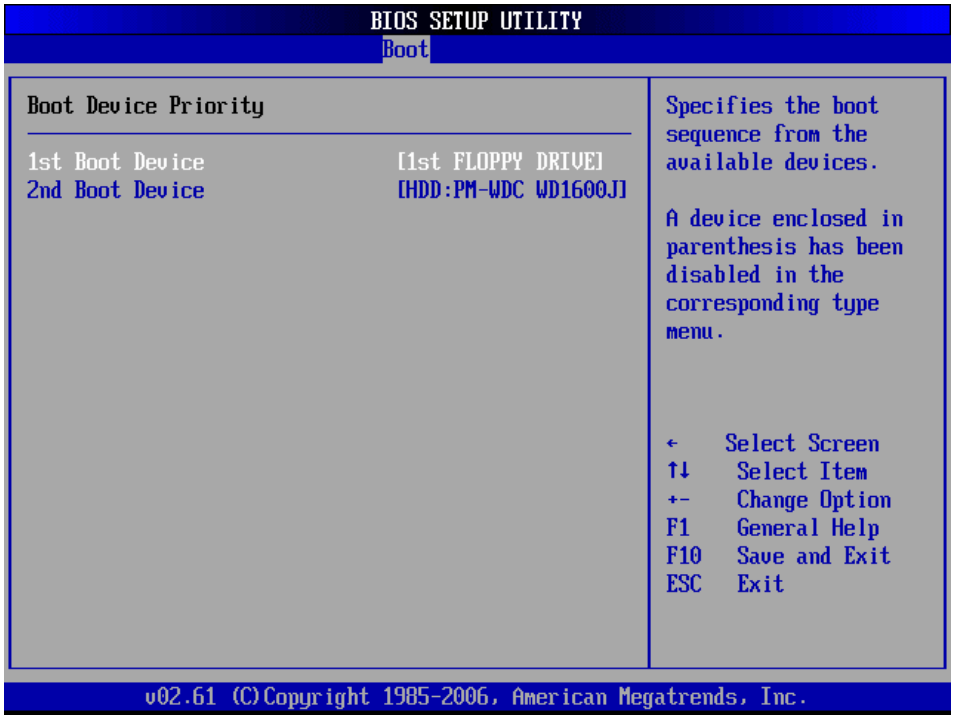
Intel® 82573L PCIe GbE controller

➔ **Enabled** Can be booted from a remote system through the Intel® 82573L PCIe GbE controller

6.5.2 Boot Device Priority

Use the **Boot Device Priority** menu (**BIOS Menu 20**) to specify the boot sequence from the available devices. Possible boot devices may include:

- USB
- HDD
- CD/DVD


BIOS SETUP UTILITY
Boot
Boot Device Priority
1st Boot Device [1st FLOPPY DRIVE]
2nd Boot Device [HDD:PM-WDC WD1600J]
Specifies the boot sequence from the available devices.
A device enclosed in parenthesis has been disabled in the corresponding type menu.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

BIOS Menu 20: Boot Device Priority Settings

6.5.3 Removable Drives

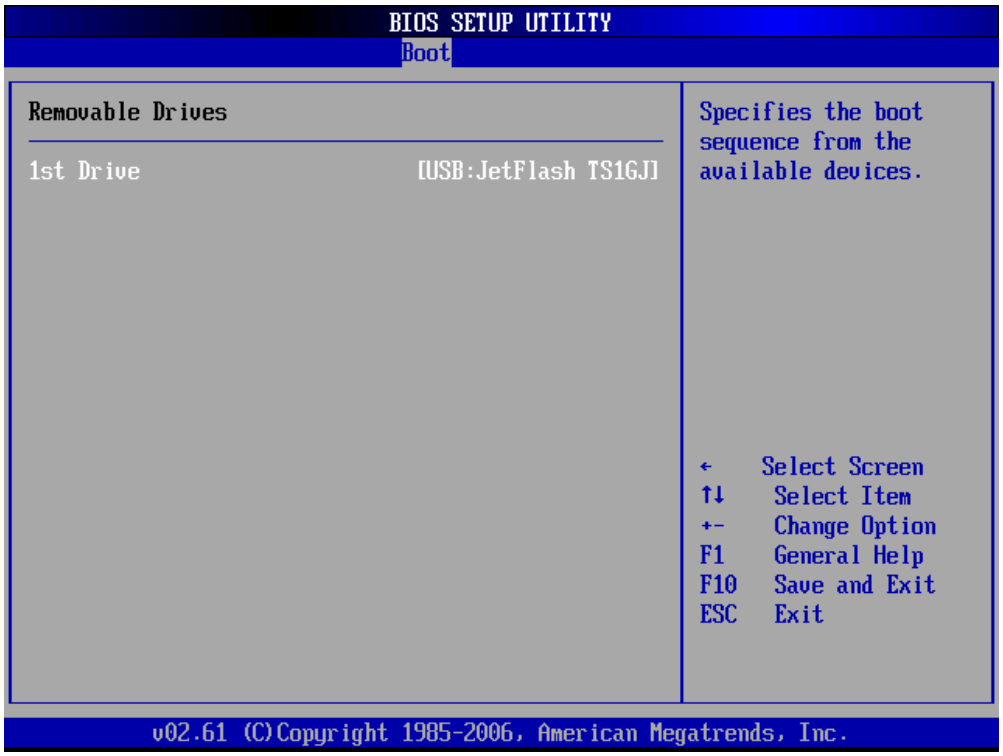
Use the **Removable Drives** menu (**BIOS Menu 21**) to specify the boot sequence of the available USB devices. When the menu is opened, the USB devices connected to the system are listed as shown below:

- 1st Drive [1st USB]
- 2nd Drive [2nd USB]

NOTE:

Only the drives connected to the system are shown. For example, if only one USB device is connected only "**1st Drive**" is listed.

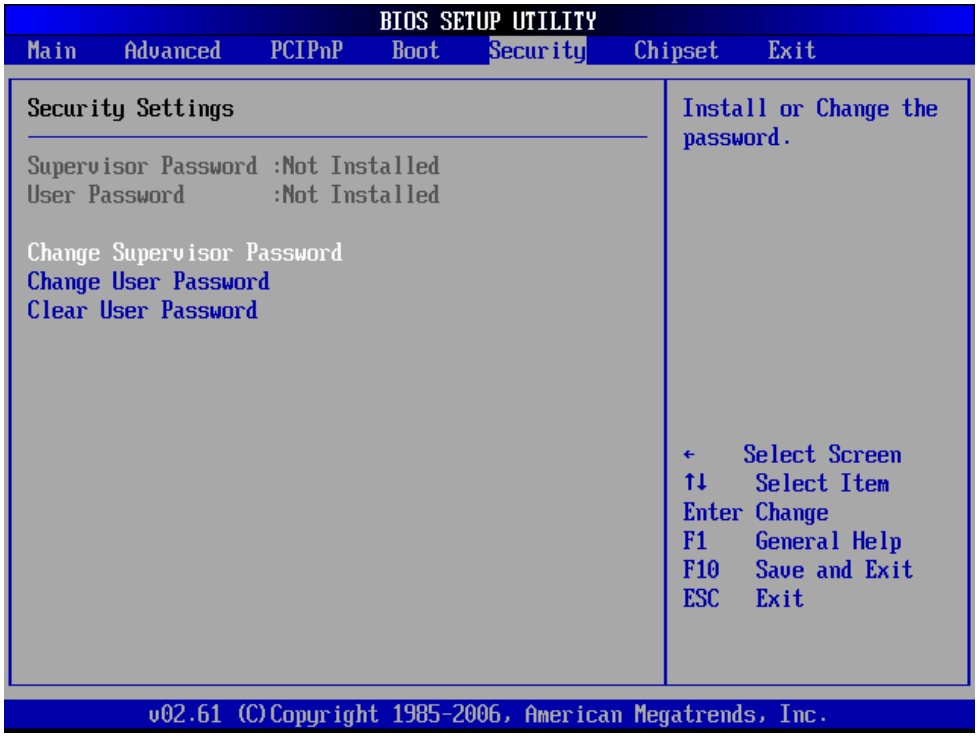
The boot sequence from the available devices is selected. If the "**1st Drive**" option is selected a list of available USB devices is shown. Select the first USB device the system boots from. If the "**1st Drive**" is not used for booting this option may be disabled.



BIOS Menu 21: Removable Drives

6.6 Security

Use the **Security** menu (**BIOS Menu 22**) to set system and user passwords.



BIOS Menu 22: Security

➔ **Change Supervisor Password**

Use the **Change Supervisor Password** to set or change a supervisor password. The default for this option is **Not Installed**. If a supervisor password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change Supervisor Password**.

➔ **Change User Password**

Use the **Change User Password** to set or change a user password. The default for this option is **Not Installed**. If a user password must be installed, select this field and enter the

password. After the password has been added, **Install** appears next to **Change User Password**.

➔ **Clear User Password**

Use the **Clear User Password** to clear a user's password. The default for this option is **Not Installed**. If a user password must be cleared, use this option.

6.7 Chipset

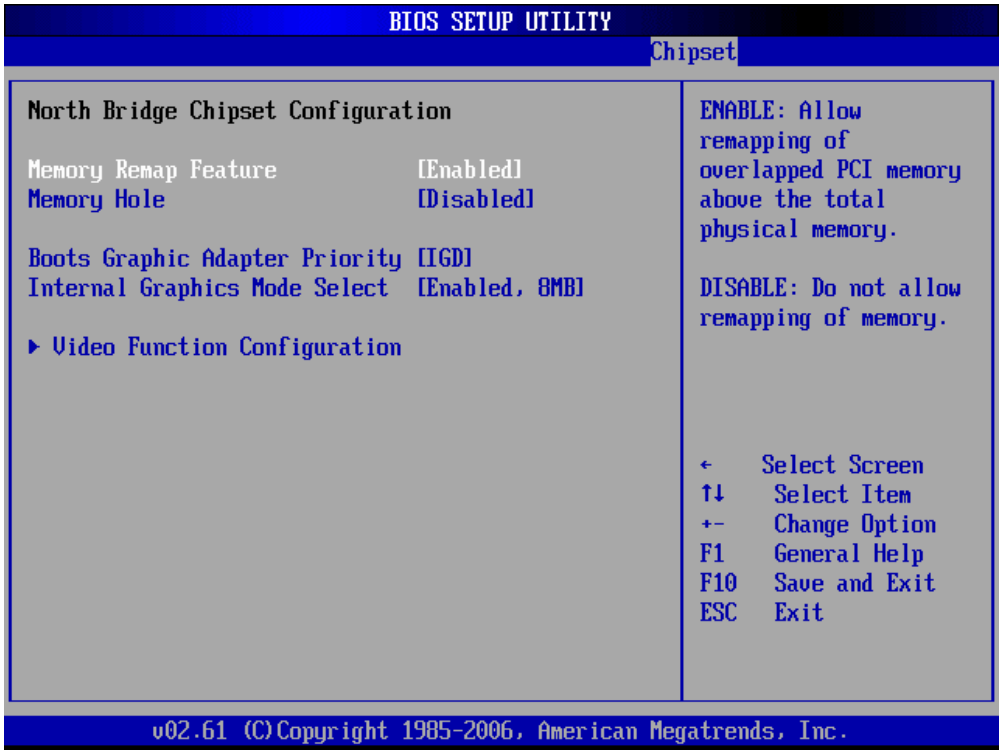
Use the **Chipset** menu to access the NorthBridge, SouthBridge and ME Subsystem configuration menus.

WARNING!

Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.

6.7.1 NorthBridge Configuration

Use the **Northbridge Chipset Configuration** menu (**BIOS Menu 23**) to configure the Northbridge chipset.


BIOS SETUP UTILITY
Chipset
North Bridge Chipset Configuration
Memory Remap Feature [Enabled]
Memory Hole [Disabled]
Boots Graphic Adapter Priority [IGD]
Internal Graphics Mode Select [Enabled, 8MB]
▶ Video Function Configuration
ENABLE: Allow remapping of overlapped PCI memory above the total physical memory.
DISABLE: Do not allow remapping of memory.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

BIOS Menu 23:Northbridge Chipset Configuration

➔ **Memory Remap Feature [Enabled]**

Use the **Memory Remap Feature** option to allow the overlapped PCI memory above the total physical memory to be remapped.

➔ **Enabled** **DEFAULT** Overlapped PCI memory can be remapped

➔ **Disabled** Overlapped PCI memory cannot be remapped

➔ **Memory Hole [Disabled]**

Use the **Memory Hole** option to reserve memory space between 15MB and 16MB for ISA expansion cards that require a specified area of memory to work properly. If an older ISA expansion card is used, please refer to the documentation that came with the card to see if it is necessary to reserve the space.

➔ **Disabled** **DEFAULT** Memory is not reserved for ISA expansion cards

➔ **15MB – 16MB** Between 15MB and 16MB of memory is reserved for ISA expansion cards

➔ **Boots Graphics Adapter Priority [IGD]**

Use the **Boots Graphics Adapter Priority** option to select the graphics controller used as the primary boot device. Select either an integrated graphics controller (IGD) or a combination of PCI graphics controller, a PCI express (PEG) controller or an IGD. Configuration options are listed below:

- IGD **DEFAULT**
- PCI/IGD

➔ **Internal Graphics Mode Select [Enable, 8MB]**

Use the **Internal Graphic Mode Select** option to specify the amount of system memory that can be used by the Internal graphics device.

➔ **Disable**

➔ **Enable, 1MB** 1MB of memory used by internal graphics device

➔ **Enable, 8MB** **DEFAULT** 8MB of memory used by internal graphics device

6.7.1.1 Video Function Configuration

Use the **Video Function Configuration** menu to configure the video device connected to the system.

➔ **Boot Display Device [Auto]**

Use the **Boot Display Device** option to select the display device used by the system when it boots. Configuration options are listed below.

- Auto **DEFAULT**
- CRT
- TV

- LFP

➔ **Flat Panel Type [1024x768 18b]**

Use the **Flat Panel Type** option to select the type of flat panel connected to the system. Configuration options are listed below.

- 640x480 18b
- 800x600 18b
- 1024x768 18b
- 1024x768 24b
- 1280x1024 48b
- 1600x1200 48b

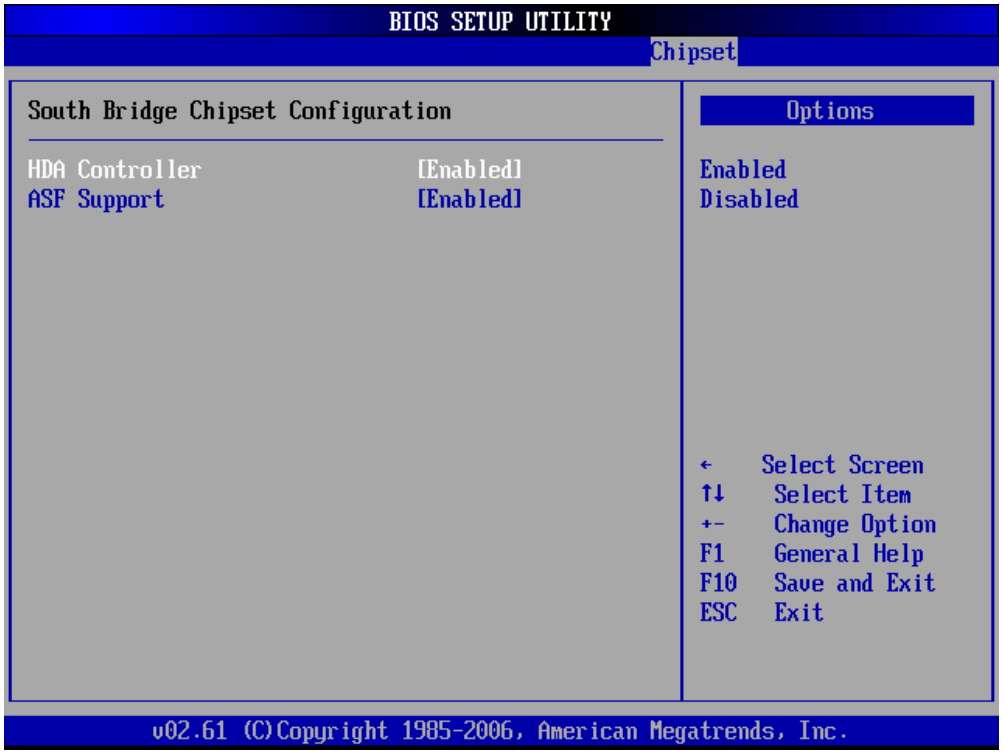
➔ **TV Standard [VBIOS-Default]**

Use the **TV Standard** option to select the standard of the television connected to the system. The configuration options are listed below.

- VBIOS-Default **DEFAULT**
- NTSC
- PAL
- SECAM
- SMPTE240M
- ITU-R television
- SMPTE295M
- SMPTE296M
- EIA-770.2
- EIA-770.3

6.7.2 Southbridge Configuration

The **Southbridge Configuration** menu (**BIOS Menu 24**) allows the Southbridge chipset to be configured.



BIOS Menu 24:Southbridge Chipset Configuration

➔ **HDA Controller [Enabled]**

Use the **HDA Controller** option to enable the Southbridge high definition audio controller. If the HDA device has been connected to the system, this option should be enabled.

➔ **Disabled** Southbridge HDA controller is disabled

➔ **Enabled** **DEFAULT** Southbridge HDA controller is enabled

➔ **ASF Support [Enabled]**

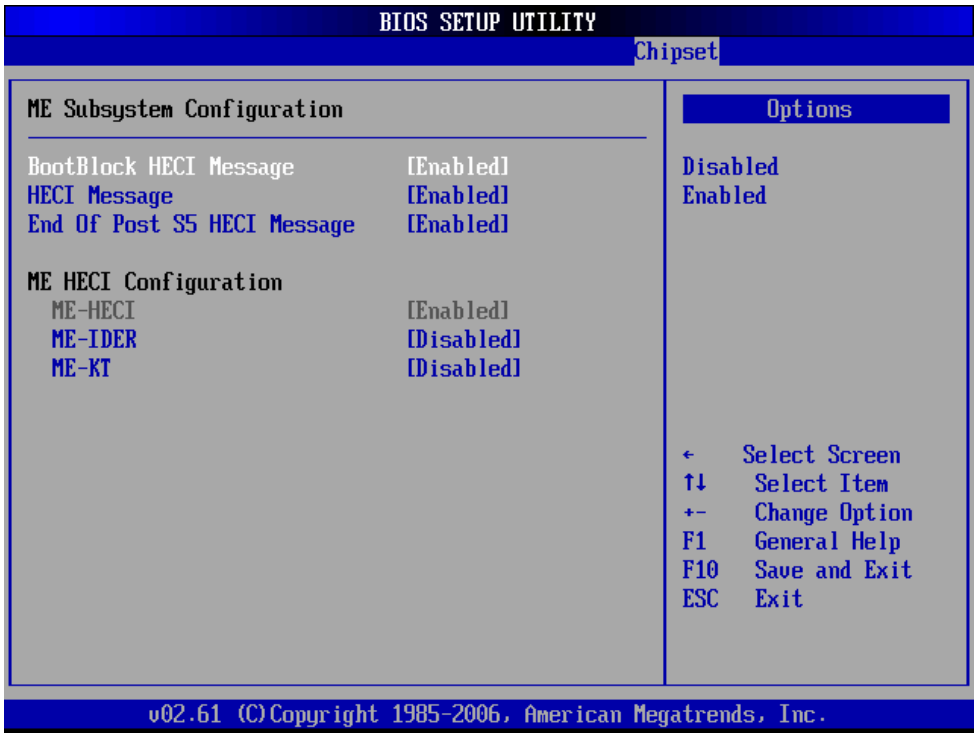
Use the **ASF Support** BIOS option to control the system's ability to connect to a remote management server.

➔ **Disabled** The system will not communicate with a remote management server.

➔ **Enabled** **DEFAULT** The Alert Standard Format (ASF) controller is activated and can communicate with a remote management server.

6.7.3 ME Subsystem Configuration

The **ME Subsystem Configuration** menu (**BIOS Menu 24**) allows the AMT subsystem (Management Engine, ME) and Host Embedded Controller Interface (HECI) driver options to be configured.



BIOS Menu 25: Me Subsystem Configuration

➔ **BootBlock HECI Message [Enabled]**

Use the **BootBlock HECI Message** option to enable or disable HECI message when booting up the system.

➔ **Disabled** The HECI message is disabled when booting up the

system.

➔ **Enabled** **DEFAULT** The HECI message is enabled when booting up the system.

➔ **HECI Message [Enabled]**

Use the **HECI Message** BIOS option to enable or disable HECI message.

➔ **Disabled** The HECI message disabled.

➔ **Enabled** **DEFAULT** The HECI message enabled.

➔ **End Of Post S5 HECI Message [Enabled]**

Use the **End Of Post S5 HECI Message** option to enable or disable HECI message when the system is in the off (S5) state.

➔ **Disabled** The HECI message is disabled when the system is off.

➔ **Enabled** **DEFAULT** The HECI message enabled when the system is off.

➔ **ME-HECI [Enabled]**

The **ME-HECI** option is enabled by default and can not be changed.

➔ **ME-IDER [Disabled]**

Use the **ME-IDER** option to enable or disable the IDE-Redirection (IDE-R) function on an AMT-capable system.

➔ **Disabled** **DEFAULT** The IDE-R function is disabled.

➔ **Enabled** The IDE-R function allows an AMT-capable client system to access IDE devices and load OS from a management system. When an IDE-R session is established, the virtual drives are shown in the system.

➔ **ME-KT [Disabled]**

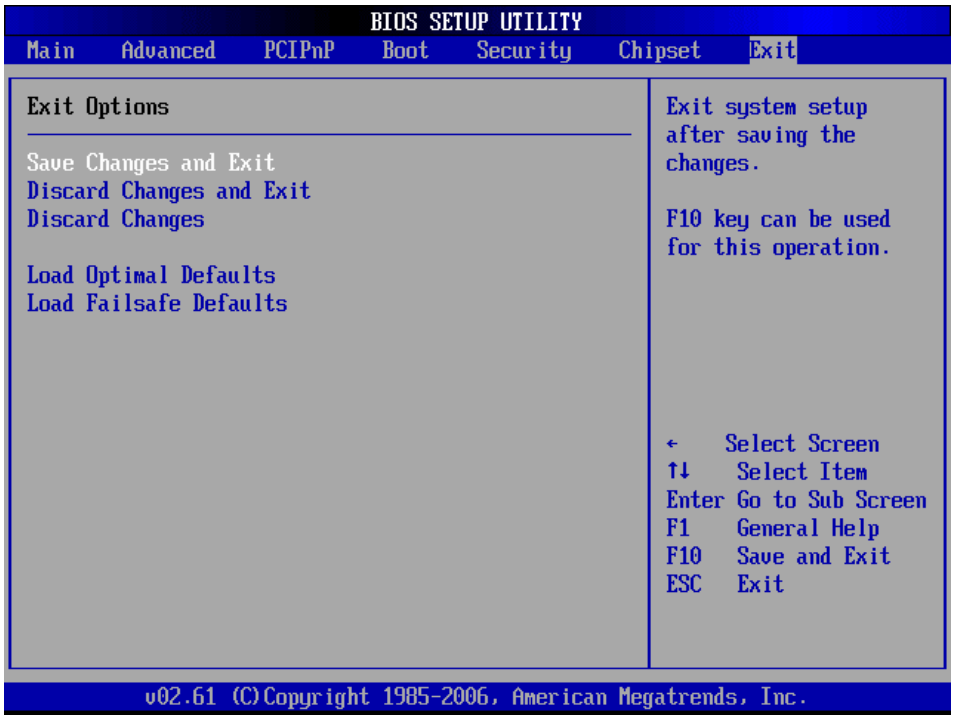
Use the **ME-KT** option to enable or disable the Keyboard and Text redirection (KT) function on an AMT-capable system. KT is also known as Serial-Over-Lan (SOL).

➔ **Disabled** **DEFAULT** The KT function of the ME is disabled.

➔ **Enabled** The KT function allows a management system to control an Intel® AMT client system remotely. The keyboard interface of a managed client system, such as BIOS menu, is displayed through the management system.

6.8 Exit

Use the **Exit** menu (**BIOS Menu 26**) to load default BIOS values, optimal failsafe values and to save configuration changes.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaults
Load Failsafe Defaults
Exit system setup after saving the changes.
F10 key can be used for this operation.
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
v02.61 (C)Copyright 1985-2006, American Megatrends, Inc.

BIOS Menu 26: Exit

➔ **Save Changes and Exit**

Use the **Save Changes and Exit** option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

➔ **Discard Changes and Exit**

Use the **Discard Changes and Exit** option to exit the BIOS configuration setup program without saving the changes made to the system.

➔ **Discard Changes**

Use the **Discard Changes** option to discard the changes and remain in the BIOS configuration setup program.

➔ **Load Optimal Defaults**

Use the **Load Optimal Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F9 key can be used for this operation.**

➔ **Load Failsafe Defaults**

Use the **Load Failsafe Defaults** option to load failsafe default values for each of the parameters on the Setup menus. **F8 key can be used for this operation.**

Chapter

7

Software Drivers

7.1 Available Software Drivers

NOTE:

The content of the CD may vary throughout the life cycle of the product and is subject to change without prior notice. Visit the IEI website or contact technical support for the latest updates.

The following drivers can be installed on the system:

- Intel® chipset driver
- VGA driver
- LAN drivers
- Audio driver
- SATA driver
- Intel® Active Management Technology (AMT) driver

Installation instructions are given below.

7.2 Driver CD Auto-run

All the drivers for the KINO-9652 are on the CD that came with the system. To install the drivers, please follow the steps below.

Step 1: Insert the CD into a CD drive connected to the system.

NOTE:

If the system does not initiate the "autorun" program when the CD is inserted, click the **Start** button, select **Run**, then type **X:\autorun.exe** (where **X:** is the system CD drive) to access the IEI Driver CD main menu.

Step 2: The driver main menu appears (**Figure 7-1**).

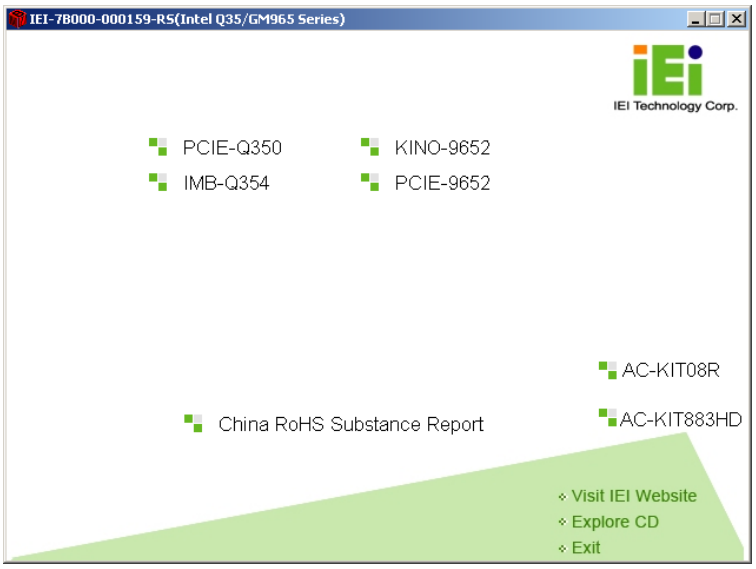


Figure 7-1: Introduction Screen

Step 3: Click KINO-9652.

Step 4: A new screen with a list of available drivers appears (**Figure 7-2**).

Figure 7-2: Available Drivers

Step 5: Select the driver to install from the list in **Figure 7-2**. Detailed driver installation instructions follow below.

7.3 Intel® Chipset Driver

To install the Intel® chipset driver, please follow the steps below.

Step 1: Select **KINO-9652** from the list in **Figure 7-1**.

Step 2: Select **INF** from the list in **Figure 7-2**.

Step 3: The window shown in **Figure 7-3** appears.

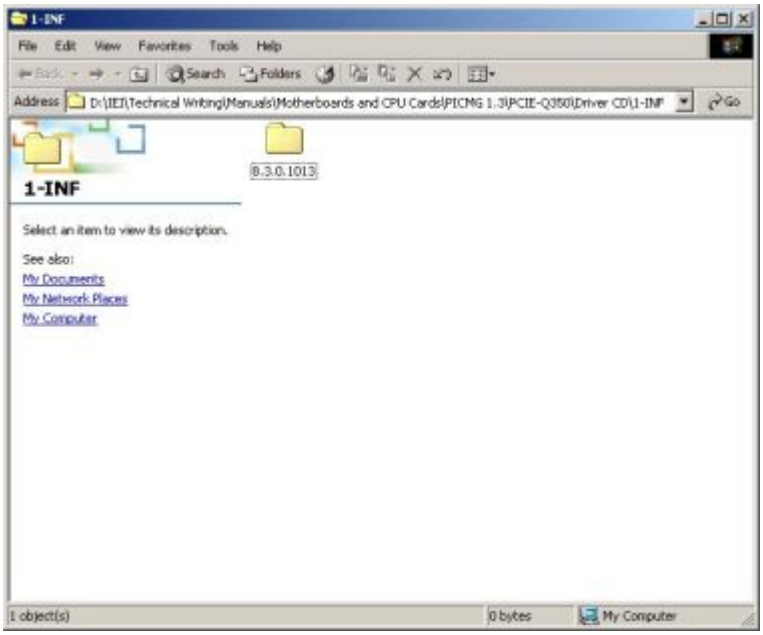


Figure 7-3: Intel® Chipset Driver Directory

Step 4: Click on the directory icon in **Figure 7-3**.

Step 5: The window in **Figure 7-4** appears.

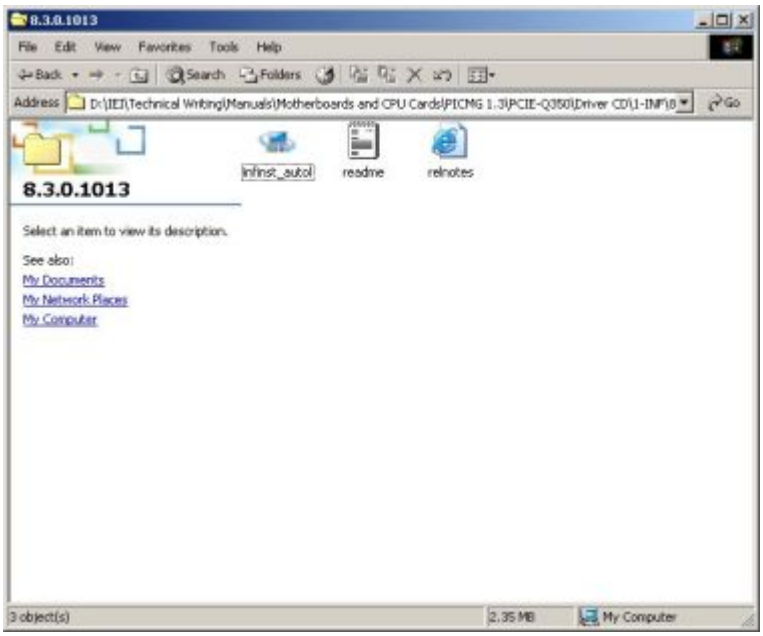


Figure 7-4: Intel® Chipset Driver Setup Icon

Step 6: Click on the **infinst_autol** setup icon in **Figure 7-4**.

Step 7: The **Intel® Package Manager** begins to extract the installation files. See **Figure 7-5**.

Figure 7-5: Intel® Package Manager

Step 8: The **Intel® Setup Welcome** screen. See **Figure 7-6**.

Intel® Chipset Device Software
Intel® Chipset Device Software
Welcome to the Setup Program
This setup program will install the Intel® Chipset Device Software onto this computer. It is strongly recommended that you exit all Windows® programs before continuing.
< Back
Next >
Cancel
Intel® Installation Framework

Figure 7-6: Intel® Setup Welcome Screen

Step 9: Click **NEXT** to continue.

Step 10: The Intel® license agreement in appears.

Intel® Chipset Device Software
Intel® Chipset Device Software
License Agreement
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework

Figure 7-7: Intel® Chipset Driver License Agreement

Step 11: Accept the terms and conditions by clicking **YES**.

Step 12: The **Readme** file in **Figure 7-8** appears.

Intel® Chipset Device Software
Intel® Chipset Device Software
Readme File Information
Refer to the Readme file below to view the system requirements and installation information.
Press the Page Down key to view the rest of the file.
* Product: Intel(R) Chipset Device Software
* Release: Production Version
* Version: 8.3.0.1013
* Target Chipset#: Q33/G33/G31/P35
* Date: March 05 2007
< Back
Next >
Cancel
Intel® Installation Framework

Figure 7-8: Readme File

Step 13: Click **NEXT** to continue.

Step 14: The driver is then installed.

Step 15: When the installation process is complete, the Setup Complete screen appears.

See **Figure 7-9**.

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Is Complete
intel
The setup program successfully installed the Intel® Chipset Device Software onto this computer. Click Finish to complete the setup process.
Finish
InstallShield Installation Framework

Figure 7-9: Intel® Chipset Driver Complete Installation Screen

Step 16: To complete the chipset driver installation, click **FINISH**.

7.4 Intel® Graphics Media Accelerator Driver

To install the chipset driver, please follow the steps below:

Step 1: Select the VGA driver from the list in **Figure 7-2**.

Step 2: A new window opens. See **Figure 7-10**.

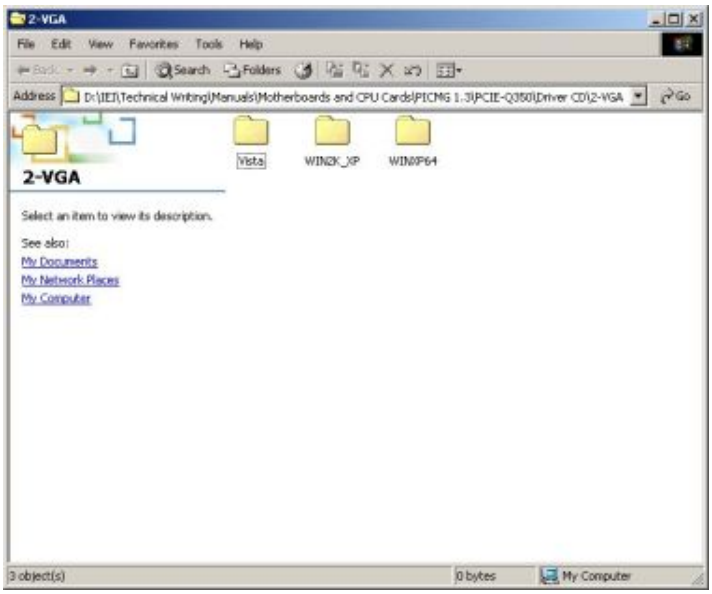


Figure 7-10: Select the Operating System

Step 3: Select the operating system from those shown in **Figure 7-10**.

Step 4: A new window appears. See **Figure 7-11**.

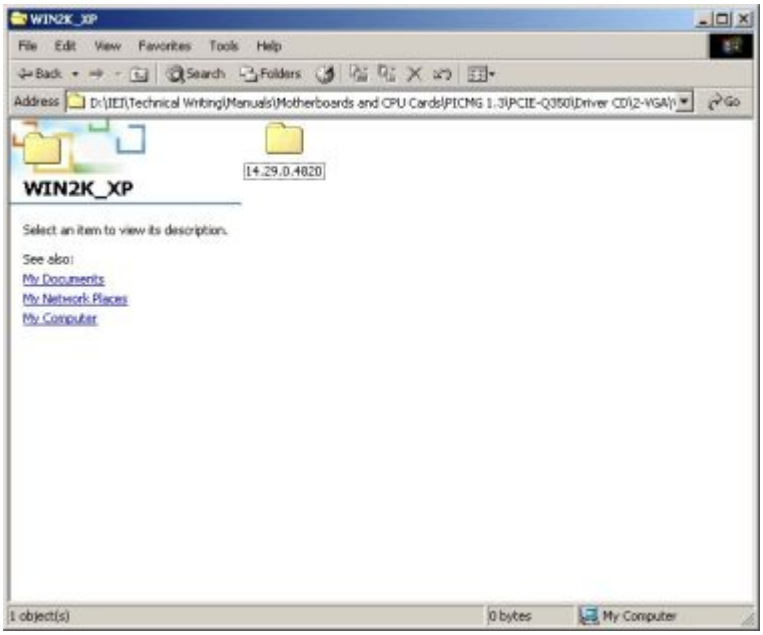


Figure 7-11: Intel® Driver Directory

Step 5: Click the directory icon in **Figure 7-11**.

Step 6: A new window appears. See **Figure 7-12**.

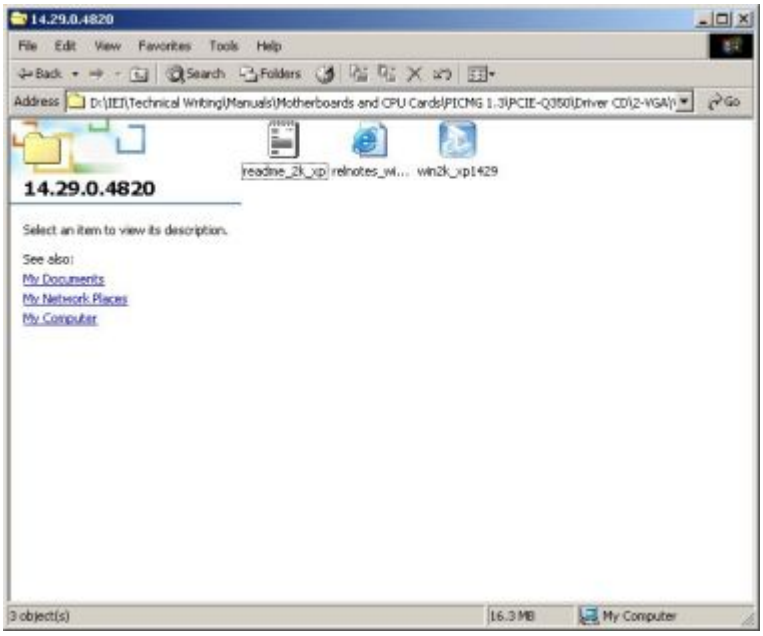


Figure 7-12: Intel® VGA Driver Setup Icon

Step 7: Click on the VGA driver installation icon in See **Figure 7-12**.

Step 8: The Readme information file shown in **Figure 7-13** appears.

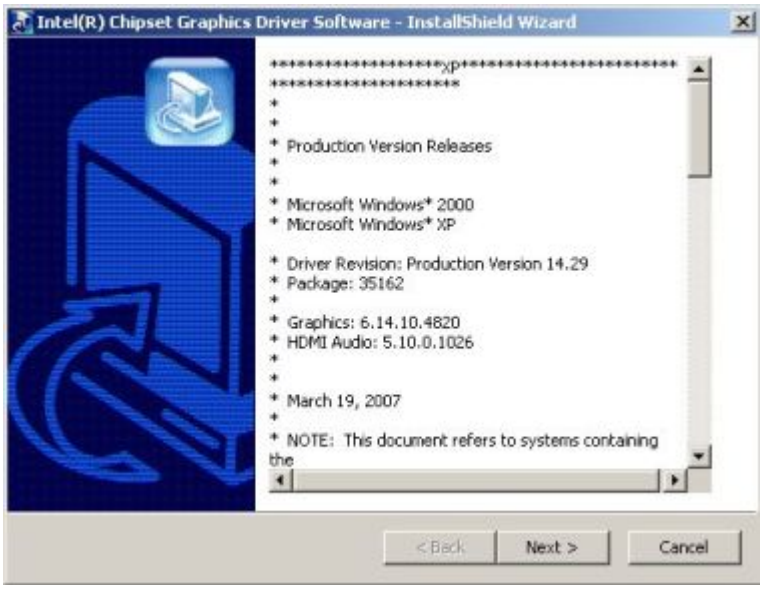

Intel(R) Chipset Graphics Driver Software - InstallShield Wizard
* Production Version Releases
* Microsoft Windows* 2000
* Microsoft Windows* XP
* Driver Revision: Production Version 14.29
* Package: 35162
* Graphics: 6.14.10.4820
* HDMI Audio: 5.10.0.1026
* March 19, 2007
* NOTE: This document refers to systems containing
the
< Back
Next >
Cancel

Figure 7-13: GMA Driver Readme File

Step 9: Click **NEXT** to extract the GMA driver files. See **Figure 7-14**.

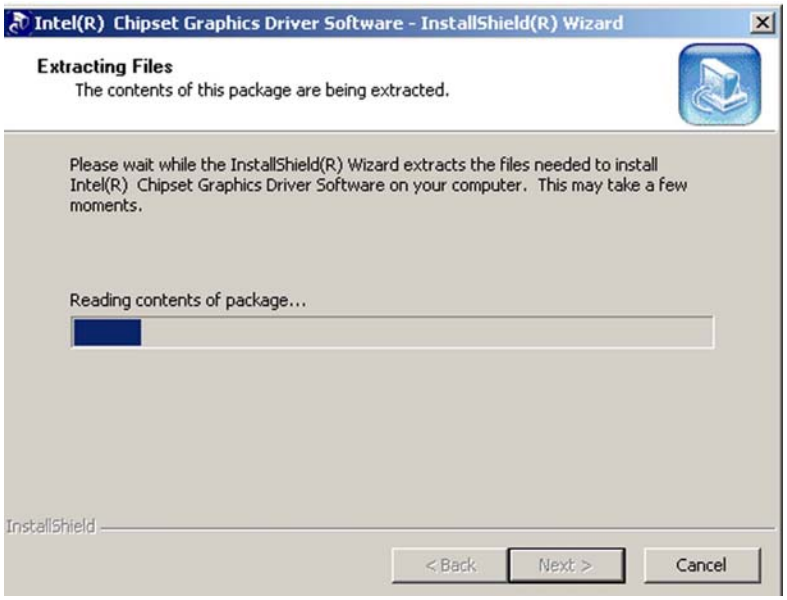

Intel(R) Chipset Graphics Driver Software - InstallShield(R) Wizard
Extracting Files
The contents of this package are being extracted.
Please wait while the InstallShield(R) Wizard extracts the files needed to install Intel(R) Chipset Graphics Driver Software on your computer. This may take a few moments.
Reading contents of package...
InstallShield
< Back
Next >
Cancel

Figure 7-14: GMA Driver File Extraction

Step 10: The welcome screen shown in **Figure 7-15** appears.

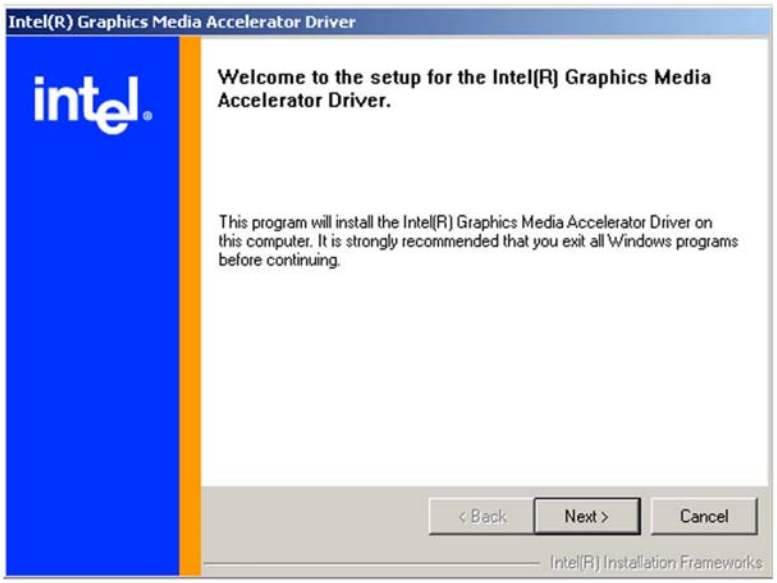

Intel(R) Graphics Media Accelerator Driver
intel
Welcome to the setup for the Intel(R) Graphics Media Accelerator Driver.
This program will install the Intel(R) Graphics Media Accelerator Driver on this computer. It is strongly recommended that you exit all Windows programs before continuing.
< Back
Next >
Cancel
Intel(R) Installation Frameworks

Figure 7-15: GMA Driver Installation Welcome Screen

Step 11: To continue the installation process, click **NEXT**.

Step 12: The license agreement in **Figure 7-16** appears.

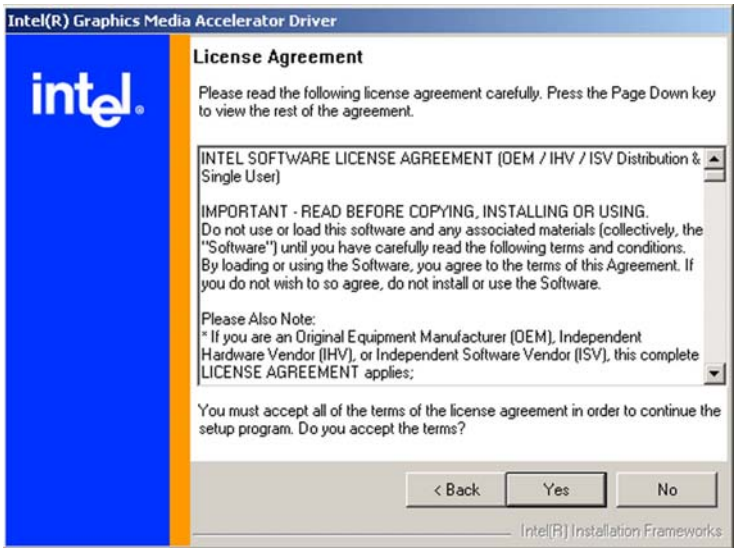

Intel(R) Graphics Media Accelerator Driver
intel
License Agreement
Please read the following license agreement carefully. Press the Page Down key to view the rest of the agreement.
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
< Back
Yes
No
Intel(R) Installation Frameworks

Figure 7-16: GMA Driver License Agreement

Step 13: Click the **YES** in **Figure 7-16** to continue.

Step 14: The installation notice shown in **Figure 7-17** appears.

Figure 7-17: GMA Driver Installing Notice

Step 15: A confirmation screen shown in **Figure 7-18** appears.

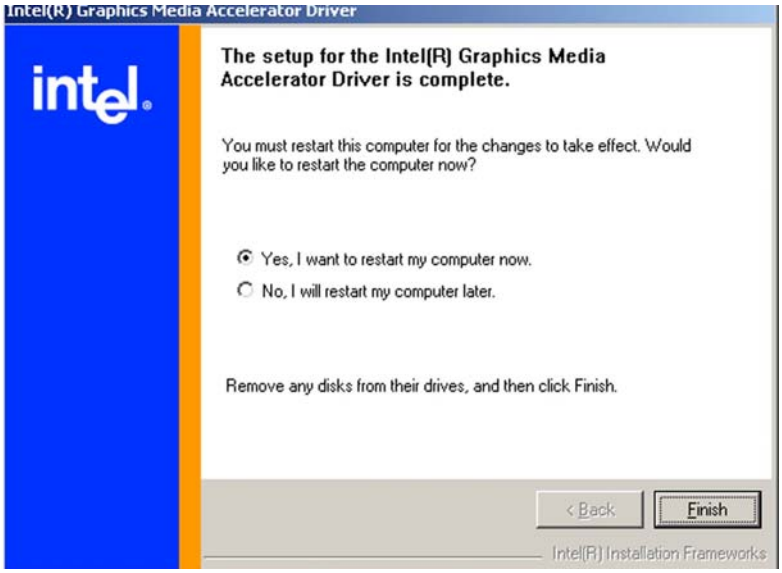

Intel(R) Graphics Media Accelerator Driver
intel
The setup for the Intel(R) Graphics Media Accelerator Driver is complete.
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish.
< Back
Finish
Intel(R) Installation Frameworks

Figure 7-18: GMA Driver Installation Complete

Step 16: After selecting when to restart the computer in **Figure 7-18**, click **FINISH**.

7.5 Intel® 82566 Gigabit LAN Connect Device Driver

To install the Intel® 82566 Gigabit LAN connect device driver, please follow the steps below.

Step 1: Select **LAN** from the list in **Figure 7-2**.

Step 2: The window in **Figure 7-19** appears.

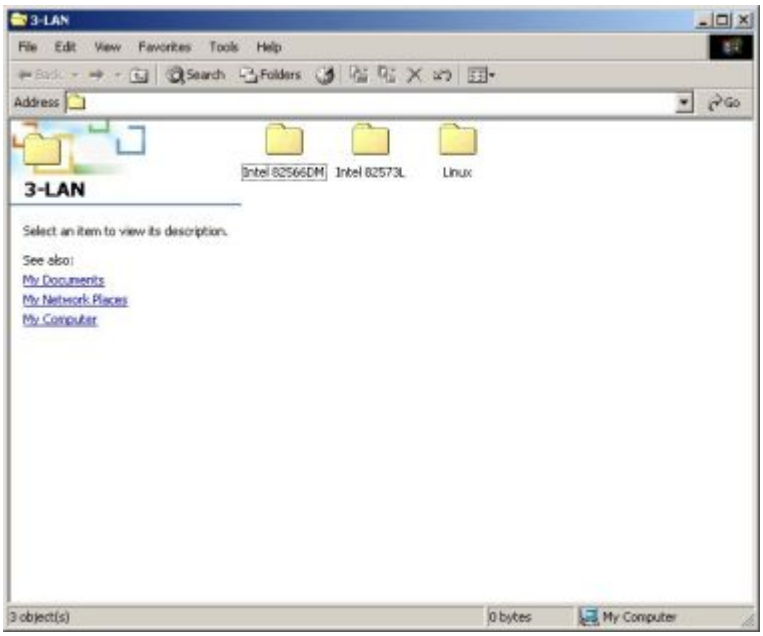


Figure 7-19: Intel® 82566 Driver Directory Icon

Step 3: Click on the **Intel® 82566DM, MM** directory icon in **Figure 7-19**.

Step 4: The window in **Figure 7-20** appears.

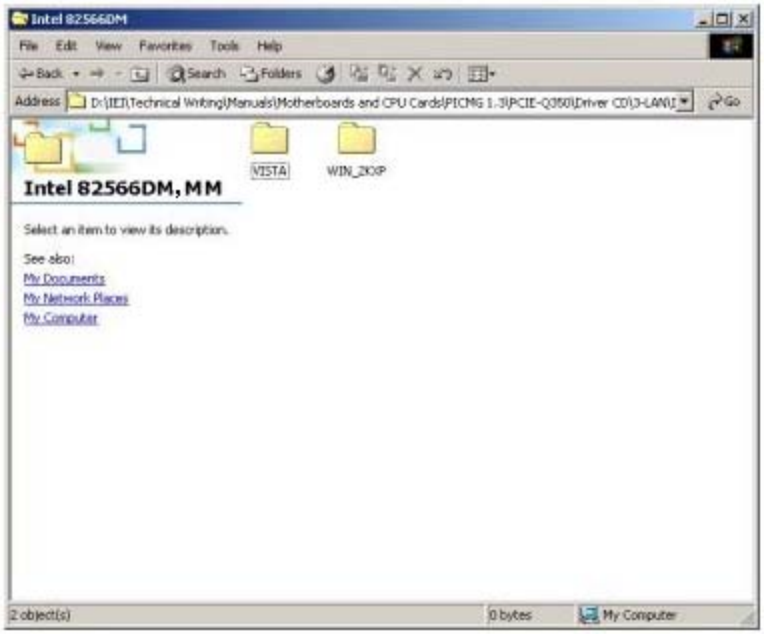


Figure 7-20: Intel® 82566 Operating System

Step 5: Select the Operating System in **Figure 7-20**.

Step 6: The window in **Figure 7-21**appears.

Step 7: In **Figure 7-21** select the operating system type installed on the system.

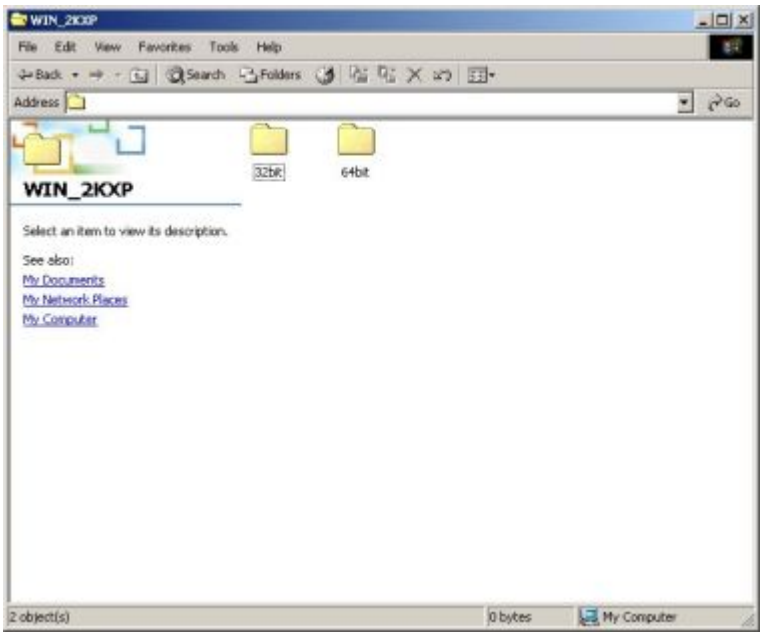


Figure 7-21: Select Operating System Type

Step 8: The window in **Figure 7-22** appears.

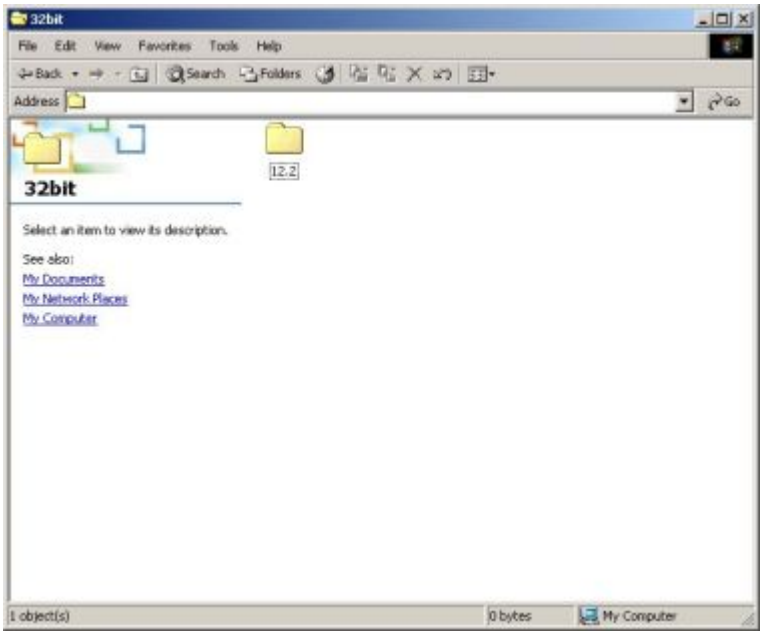


Figure 7-22: Driver Directory

Step 9: Click on the directory icon in **Figure 7-22**.

Step 10: A window containing the Intel® 82566 driver startup icon appears. See **Figure 7-23**.

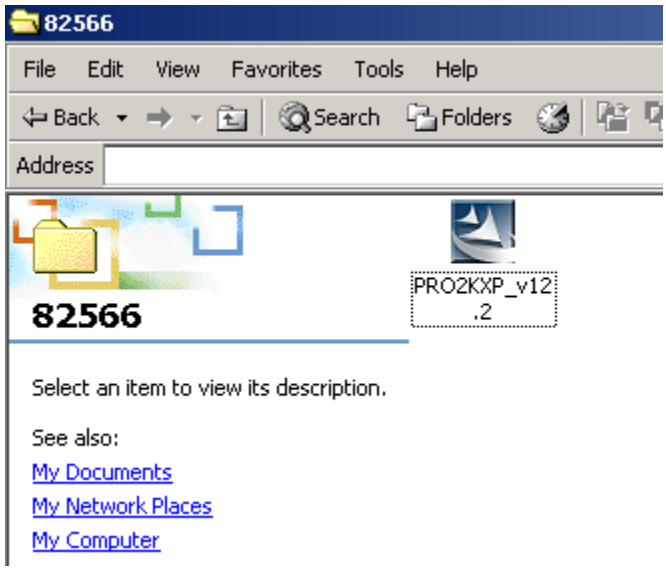


Figure 7-23: Intel® 82566 Device Driver Startup Icon

Step 11: Double click the Intel® 82566 driver startup icon in **Figure 7-23**.

Step 12: The driver begins to extract the installation files.

Step 13: The **Welcome** screen in **Figure 7-24** appears next.

Step 14: Click **NEXT** to continue.

Intel(R) PRO Network Connections - InstallShield Wizard
Welcome to the InstallShield Wizard for
Intel(R) PRO Network Connections
Installs drivers, Intel(R) PROSet for Windows* Device Manager, and Advanced Networking Services.
WARNING: This program is protected by copyright law and international treaties.
InstallShield
< Back
Next >
Cancel

Figure 7-24: Intel® 82566 Welcome Screen

Step 15: The license agreement in **Figure 7-25** appears.

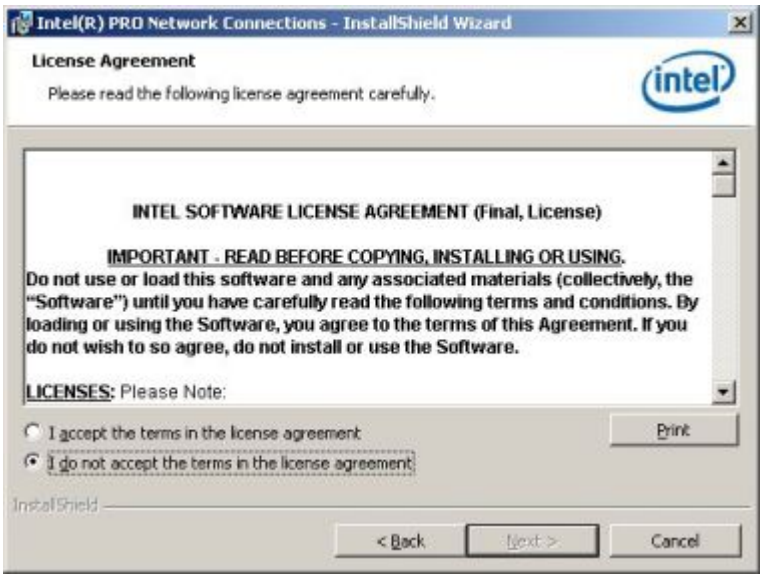

Intel(R) PRO Network Connections - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
INTEL SOFTWARE LICENSE AGREEMENT (Final, License)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
LICENSES: Please Note:
I accept the terms in the license agreement
I do not accept the terms in the license agreement
Print
InstallShield
< Back
Next >
Cancel

Figure 7-25: Intel® 82566 Driver License Agreement

Step 16: Accept the conditions of the license agreement and click **NEXT** to continue.

Step 17: The **Setup Options** screen in **Figure 7-26** appears next.

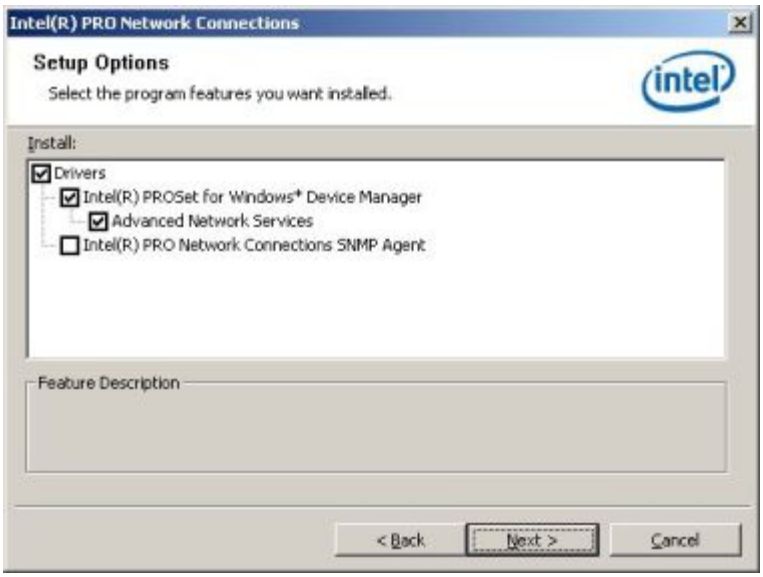


Figure 7-26: Intel® 82566 Driver Setup Options

Step 18: Select the required installation configuration in **Figure 7-26** and click **NEXT** to continue.

Step 19: The **Ready to Install the Program** window in **Figure 7-27** appears.

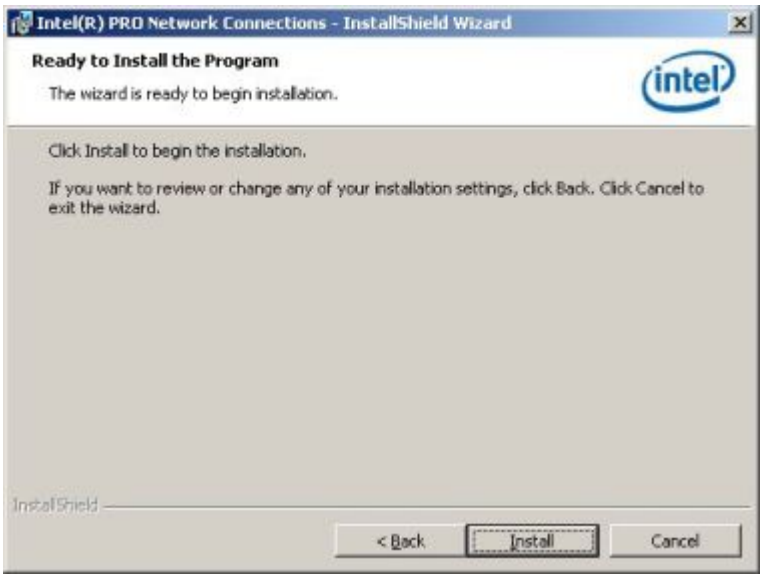

Intel(R) PRO Network Connections - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

Figure 7-27: Intel® 82566 Driver Installation Ready Window

Step 20: Click **INSTALL** in **Figure 7-27**.

Step 21: The program starts to install the driver. The window in appears.

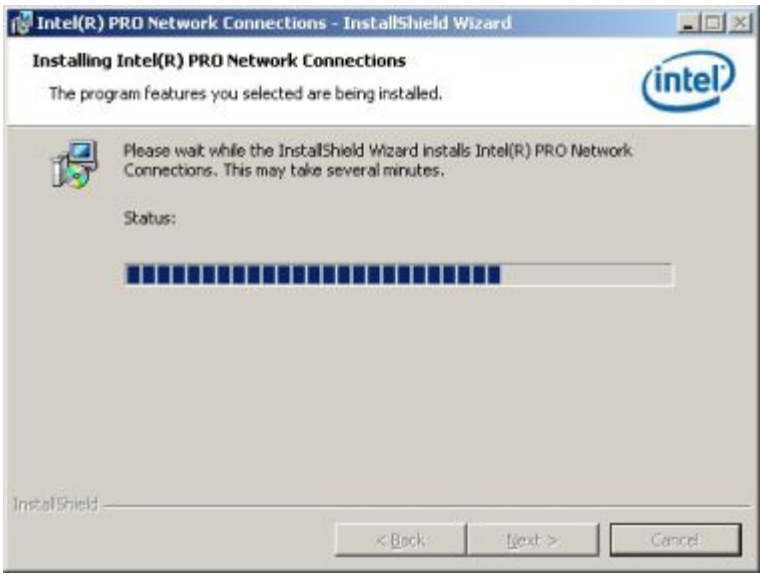

Intel(R) PRO Network Connections - InstallShield Wizard
Installing Intel(R) PRO Network Connections
The program features you selected are being installed.
Please wait while the InstallShield Wizard installs Intel(R) PRO Network Connections. This may take several minutes.
Status:
InstallShield
< Back
Next >
Cancel

Figure 7-28: Intel® 82566 Driver Installation Progress

Step 22: When the installation is finished. Click **FINISH** in the termination screen.

7.6 Intel® 82573 PCI Express Gigabit Ethernet Controller Driver

To install the Intel® 82573 PCIe GbE controller, please follow the steps below.

Step 1: Select **LAN** from the list in **Figure 7-2**.

Step 2: The window in **Figure 7-29** appears.

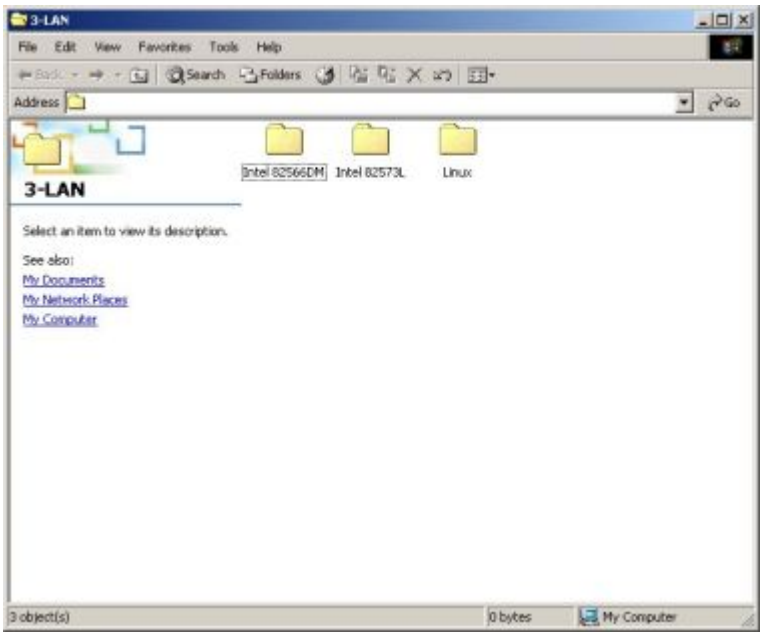


Figure 7-29: Intel® 82573 Driver Directory Icon

Step 3: Click on the **Intel® 82573L** directory icon in **Figure 7-29**.

Step 4: The window in **Figure 7-30** appears.

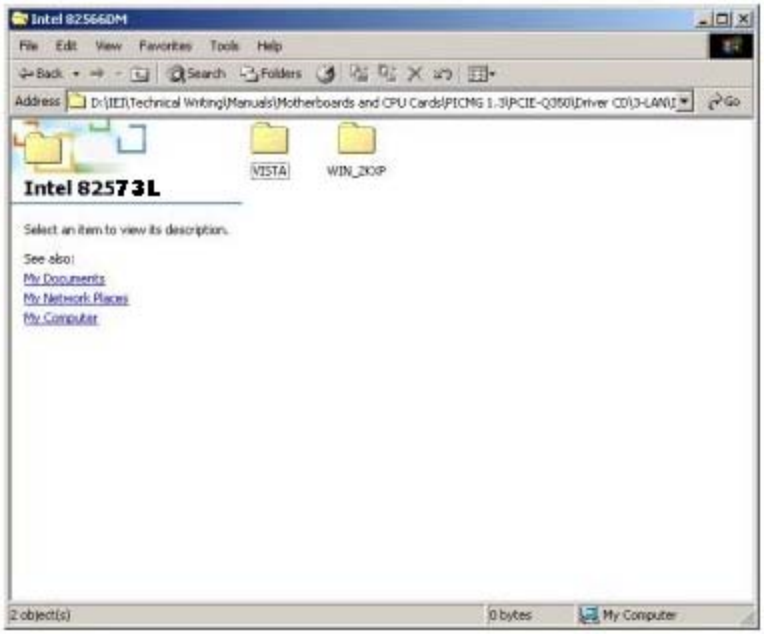


Figure 7-30: Intel® 82573 Operating System

Step 5: Select the Operating System in **Figure 7-30**.

Step 6: The window in **Figure 7-31** appears.

Step 7: In **Figure 7-31** select the operating system type installed on the system.

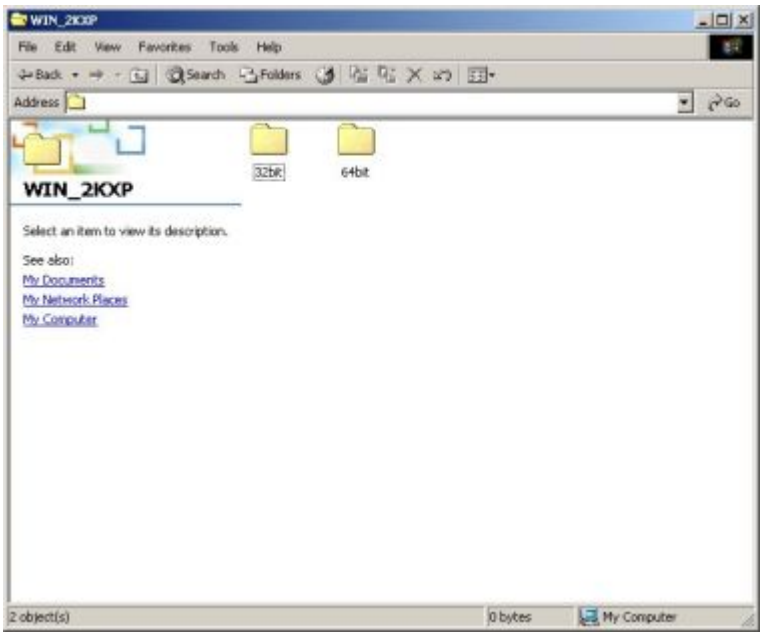


Figure 7-31: Select Operating System Type

Step 8: The window in **Figure 7-32** appears.

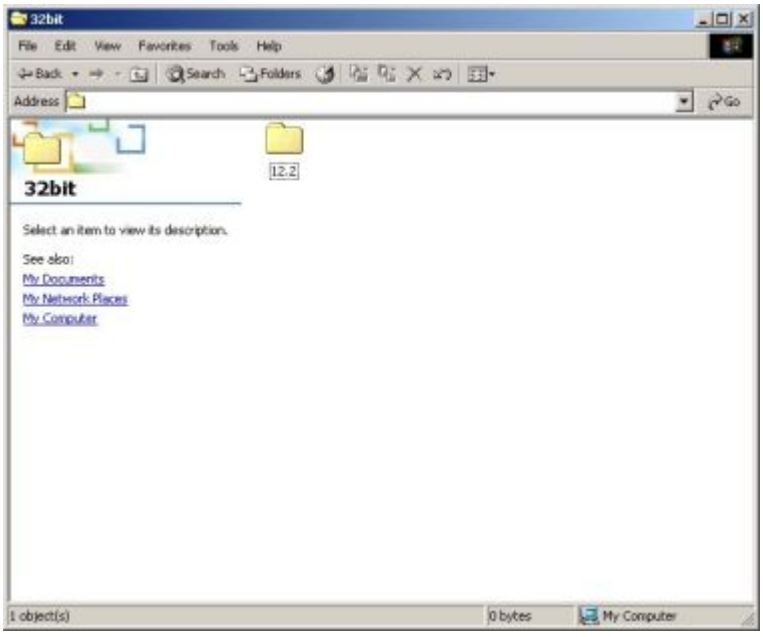


Figure 7-32: Driver Directory

Step 9: Click on the directory icon in **Figure 7-22**.

Step 10: A window containing the Intel® 82573 driver startup icon appears. See **Figure 7-32**.

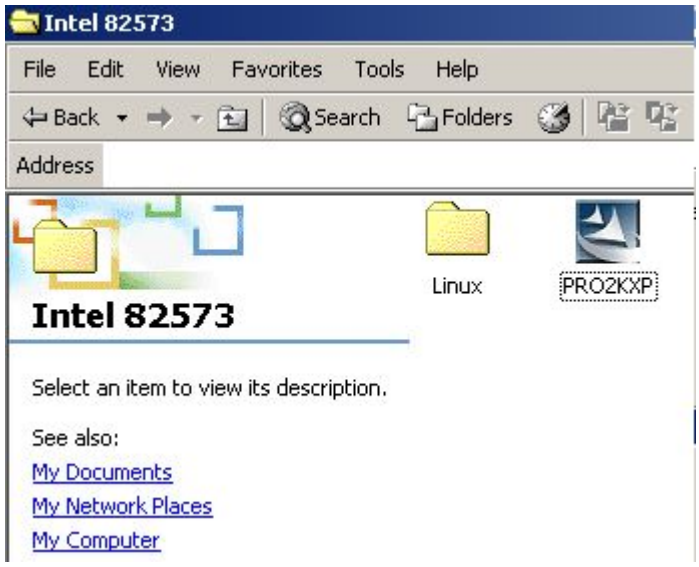


Figure 7-33: Intel® 82573 Driver Startup Icon

Step 11: Click the startup icon in **Figure 7-33**.

Step 12: The **License Agreement** for the Intel® 82573 appears. See **Figure 7-34**.

DriverInstaller - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
INTEL SOFTWARE LICENSE AGREEMENT
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
I accept the terms in the license agreement
I do not accept the terms in the license agreement
InstallShield
< Back
Next >
Cancel

Figure 7-34: Intel® 82573 License Agreement

Step 13: Accept the license terms and agreements in and click **NEXT** to continue.

Step 14: Next, select the directory in which the files must be saved. See **Figure 7-35**.

DriverInstaller - InstallShield Wizard
Location to Save Files
Where would you like to save your files?
Please enter the folder where you want these files saved. If the folder does not exist, it will be created for you. To continue, click Next.
Save files in folder:
c:\Intel11.1
Change...
InstallShield
< Back
Next >
Cancel

Figure 7-35: Intel® 82573 File Location Select

Step 15: Click **NEXT** to continue.

Step 16: The driver begins to extract the installation files. See **Figure 7-36**.

DriverInstaller - InstallShield Wizard
Extracting Files
The contents of this package are being extracted.
Please wait while the InstallShield Wizard extracts the files needed to install DriverInstaller on your computer. This may take a few moments.
Extracting Autorun.exe...
InstallShield
< Back
Next >
Cancel

Figure 7-36: Intel® 82573 Installation Files Extraction

Step 17: The Intel® PRO Network Connections window appears. See **Figure 7-37**.

Figure 7-37: Intel® PRO Network Connections window

Step 18: Click **INSTALL DRIVERS** in **Figure 7-37**.

Step 19: The **Intel® PRO Network Connections Welcome** screen in **Figure 7-38** appears.

Intel(R) PRO Network Connections - InstallShield Wizard
Welcome to the InstallShield Wizard for
Intel(R) PRO Network Connections
Installs drivers, Intel(R) PROSet for Windows* Device Manager, and Advanced Networking Services.
WARNING: This program is protected by copyright law and international treaties.
InstallShield
< Back
Next >
Cancel

Figure 7-38: Intel® PRO Network Connections Welcome

Step 20: Click **NEXT** to continue.

Step 21: A new **License Agreement** appears. See **Figure 7-39**.

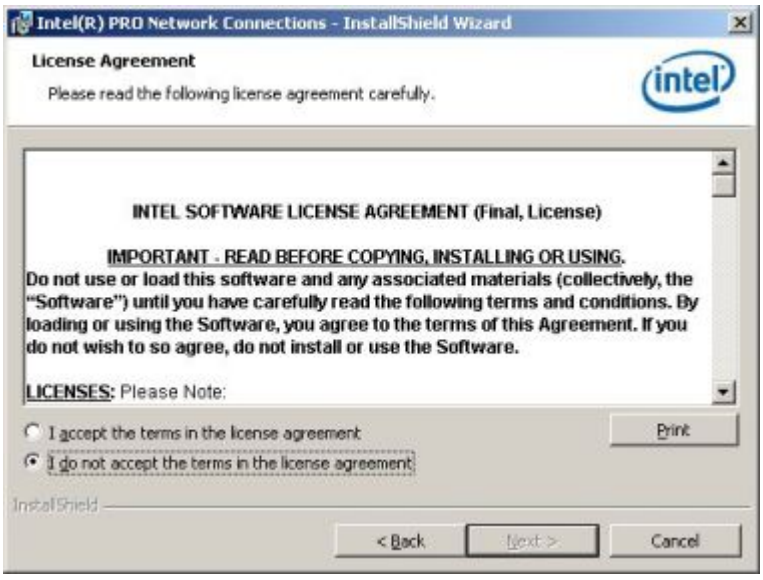

Intel(R) PRO Network Connections - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
INTEL SOFTWARE LICENSE AGREEMENT (Final, License)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
LICENSES: Please Note:
I accept the terms in the license agreement
I do not accept the terms in the license agreement
Print
InstallShield
< Back
Next >
Cancel

Figure 7-39: License Agreement

Step 22: Accept the terms and conditions in **Figure 7-39** and click **NEXT** to continue.

Step 23: The **Setup Type** window in **Figure 7-40** appears.

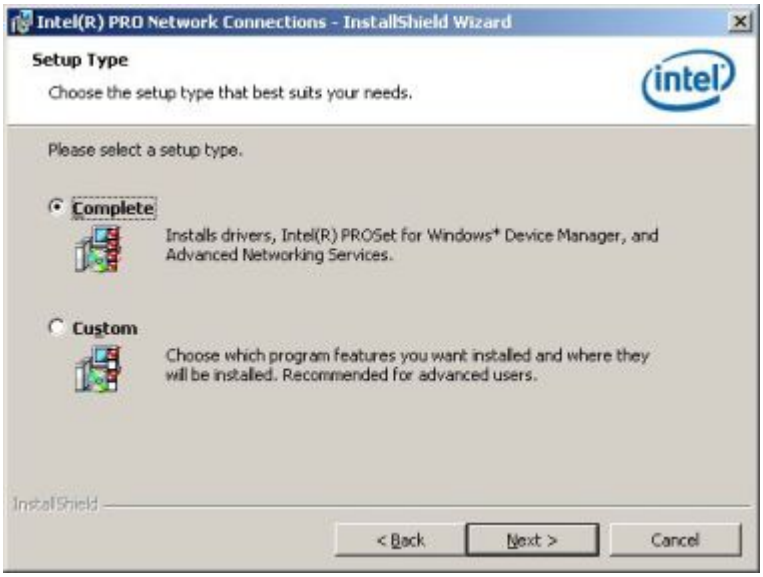

Intel(R) PRO Network Connections - InstallShield Wizard
Setup Type
Choose the setup type that best suits your needs.
intel
Please select a setup type.
Complete
Installs drivers, Intel(R) PROSet for Windows* Device Manager, and Advanced Networking Services.
Custom
Choose which program features you want installed and where they will be installed. Recommended for advanced users.
InstallShield
< Back
Next >
Cancel

Figure 7-40: Setup Type

Step 24: Select the setup type in **Figure 7-40** and click **NEXT** to continue.

Step 25: The drivers are installed. See **Figure 7-41**.

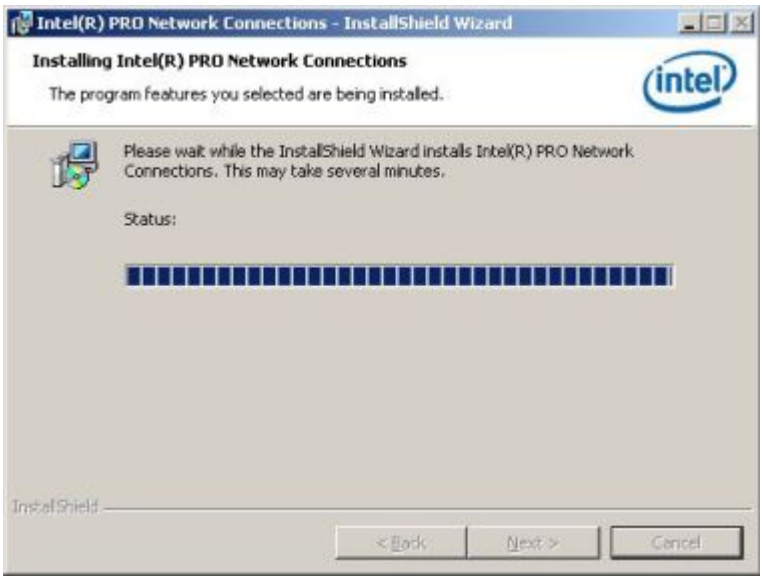

Intel(R) PRO Network Connections - InstallShield Wizard
Installing Intel(R) PRO Network Connections
The program features you selected are being installed.
intel
Please wait while the InstallShield Wizard installs Intel(R) PRO Network Connections. This may take several minutes.
Status:
InstallShield
< Back
Next >
Cancel

Figure 7-41: Intel® 82573 Driver Installation Progress

Step 26: When the driver is installed. Click **FINISH** in the termination screen.

7.7 Realtek HD Audio Driver (ALC883) Installation

To install the Realtek High Definition (HD) Audio driver, please follow the steps below.

NOTE:

This driver only needs to be installed if an external audio kit with a RealTek ALC883 codec is installed.

7.7.1 BIOS Setup

Step 1: Enter the BIOS setup. To do this, reboot the system and press **DEL** during POST.

Step 2: Go to the Southbridge Configuration menu. Enable the High Definition Audio controller.

Step 3: Press **F10** to save the changes and exit the BIOS setup. The system reboots.

7.7.2 Driver Installation

To install the audio driver please follow the steps below.

Step 1: Select **AUDIO** from the list in **Figure 7-2**.

Step 2: A new window opens (**Figure 7-42**).

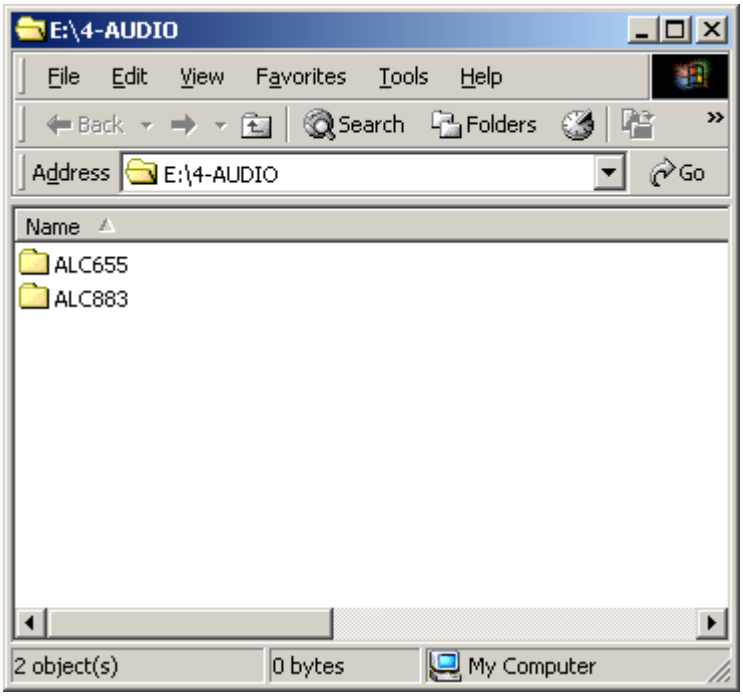


Figure 7-42: Select the Audio CODEC

Step 3: Double-click the ALC883 folder.

Step 4: Double-click the appropriate operating system folder (**Figure 7-43**).

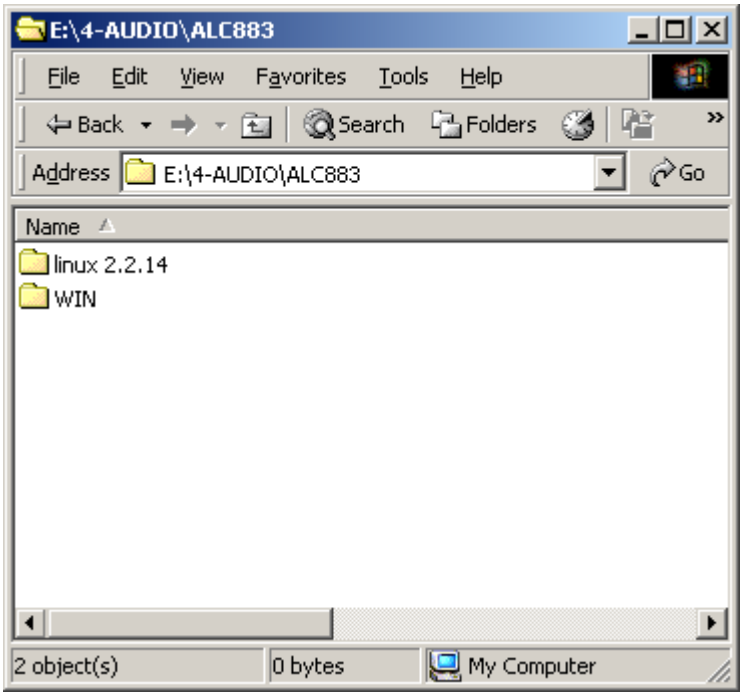


Figure 7-43: Select the OS

Step 5: Double-click the appropriate operating system version folder (**Figure 7-44**).

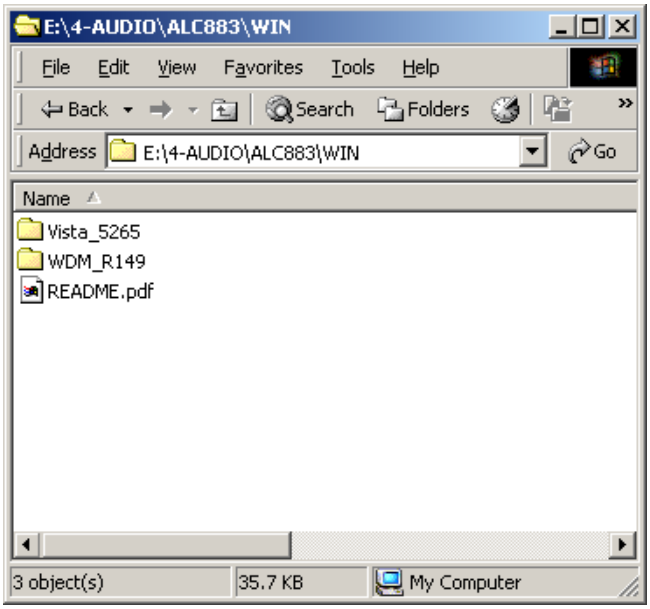


Figure 7-44: Select the OS Version

Step 6: Double-click the **Setup.exe** program icon in **Figure 7-45**.

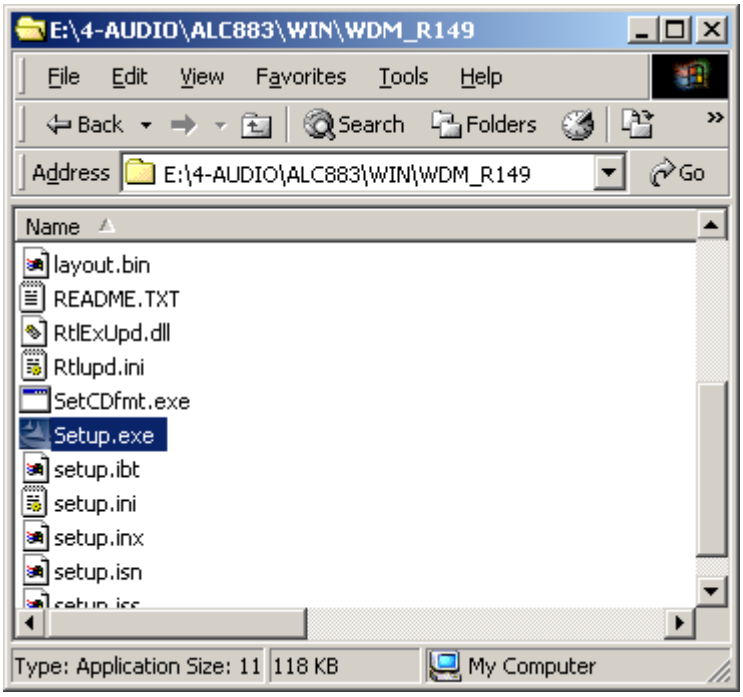


Figure 7-45: Locate the Setup Program Icon

Step 7: The **InstallShield Wizard** starts (**Figure 7-46**).

Figure 7-46: The InstallShield Wizard Starts

Step 8: The **InstallShield Wizard** is prepared to guide the user through the rest of the process (**Figure 7-47**).

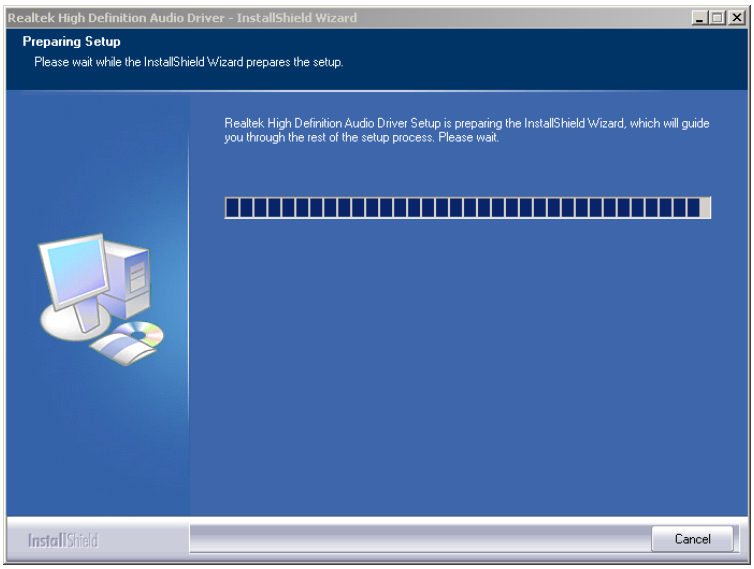

Realtek High Definition Audio Driver - InstallShield Wizard
Preparing Setup
Please wait while the InstallShield Wizard prepares the setup.
Realtek High Definition Audio Driver Setup is preparing the InstallShield Wizard, which will guide you through the rest of the setup process. Please wait.
InstallShield
Cancel

Figure 7-47: Preparing Setup Screen

Step 9: Once initialized, the **InstallShield Wizard** welcome screen appears (**Figure 7-48**).

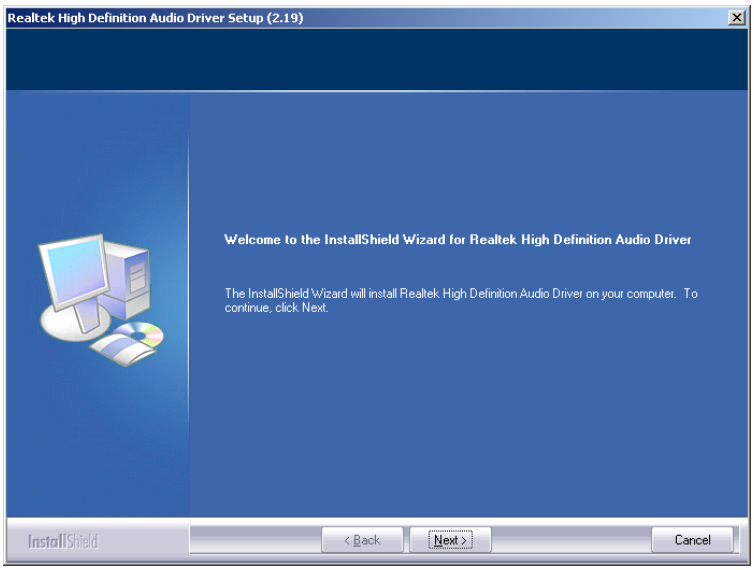

Realtek High Definition Audio Driver Setup (2.19)
Welcome to the InstallShield Wizard for Realtek High Definition Audio Driver
The InstallShield Wizard will install Realtek High Definition Audio Driver on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

Figure 7-48: InstallShield Wizard Welcome Screen

Step 10: Click **NEXT** to continue the installation.

Step 11: InstallShield starts to install the new software as shown in **Figure 7-49**.

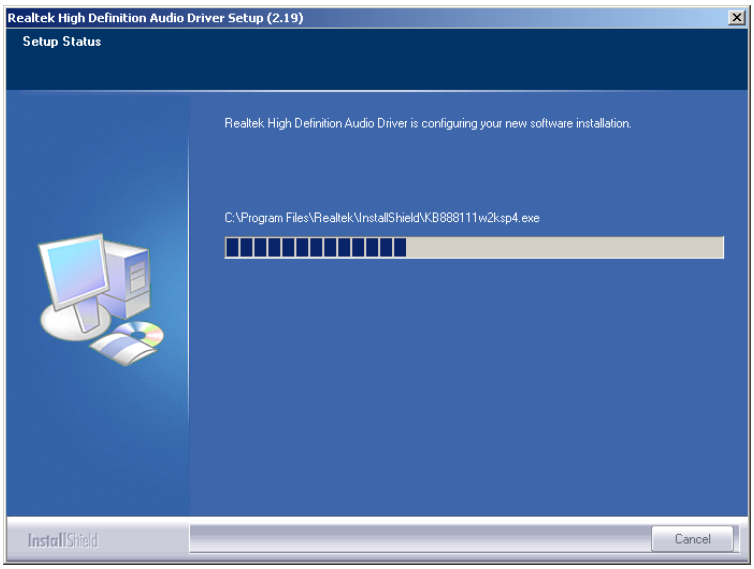

Realtek High Definition Audio Driver Setup (2.19)
Setup Status
Realtek High Definition Audio Driver is configuring your new software installation.
C:\Program Files\Realtek\InstallShield\KB888111w2ksp4.exe
InstallShield
Cancel

Figure 7-49: Audio Driver Software Configuration

Step 12: The Installation Wizard updates the system as shown in **Figure 7-50**.

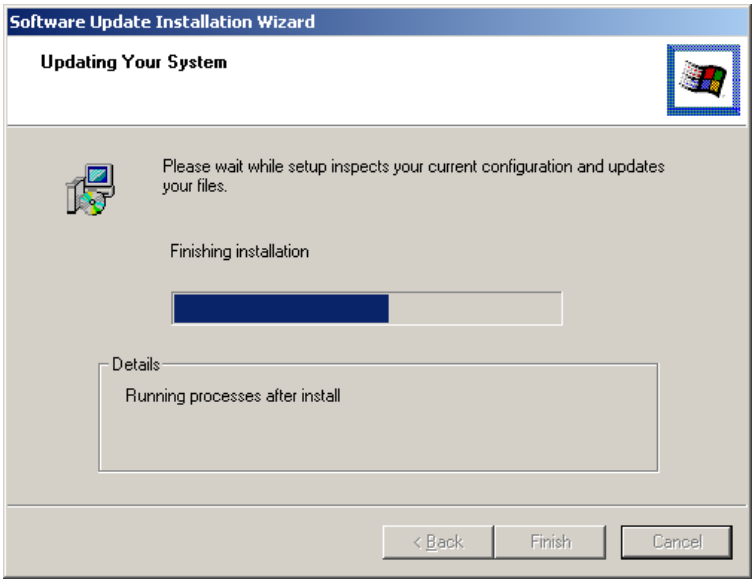


Figure 7-50: Installation Wizard Updates the System

Step 13: After the driver installation process is complete, a confirmation screen appears (**Figure 7-51**).

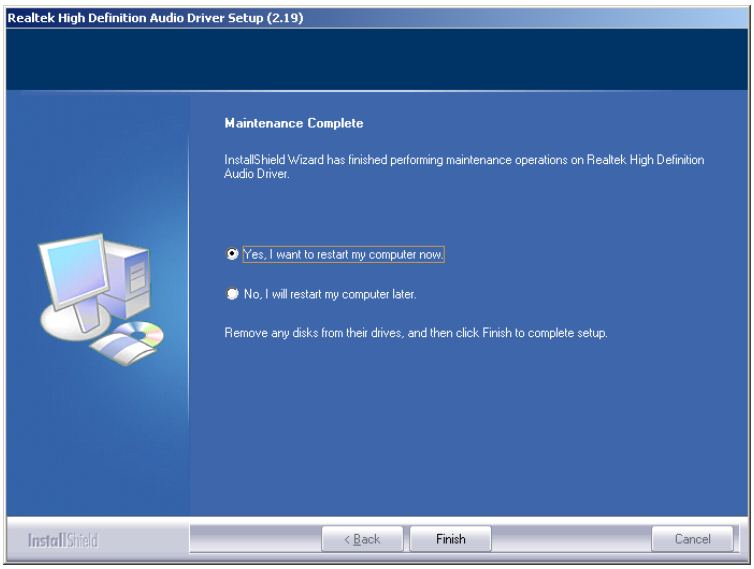

Realtek High Definition Audio Driver Setup (2.19)
Maintenance Complete
InstallShield Wizard has finished performing maintenance operations on Realtek High Definition Audio Driver.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
InstallShield
< Back
Finish
Cancel

Figure 7-51: Restart the Computer

Step 14: The confirmation screen offers the option of restarting the computer now or later. For the settings to take effect, the computer must be restarted. Click **FINISH** to restart the computer.

7.8 Intel® Matrix Storage Manager Driver Installation

To install the Intel® Matrix Storage Manager driver, please follow the steps below:

Step 1: Select **SATA** from the list in **Figure 7-2**.

Step 2: A new window opens (**Figure 7-52**).

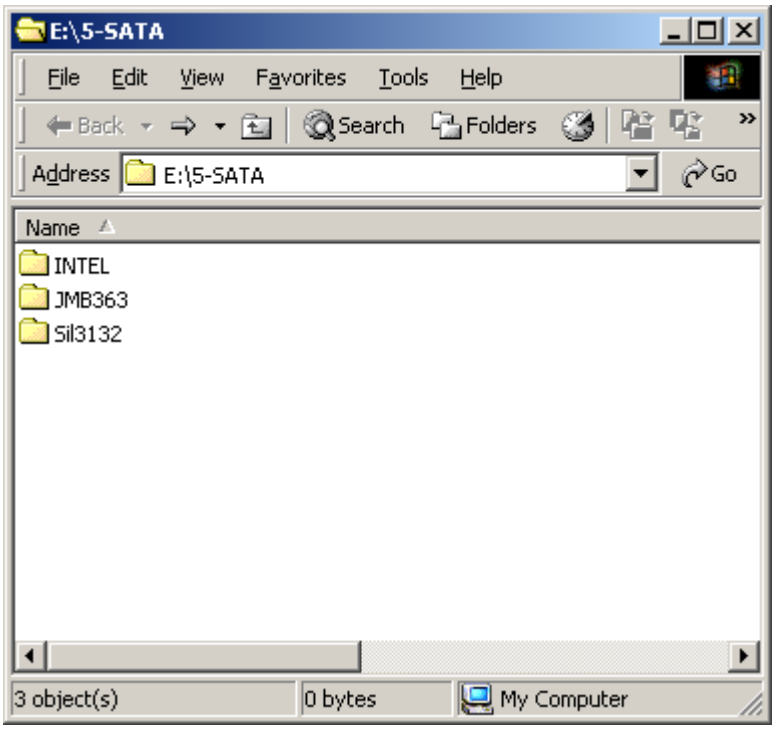


Figure 7-52: SATA RAID Driver Installation Program

Step 3: Double-click the **INTEL®** folder.

Step 4: Double-click the **iata62_cd.exe** program icon in **Figure 7-53**.

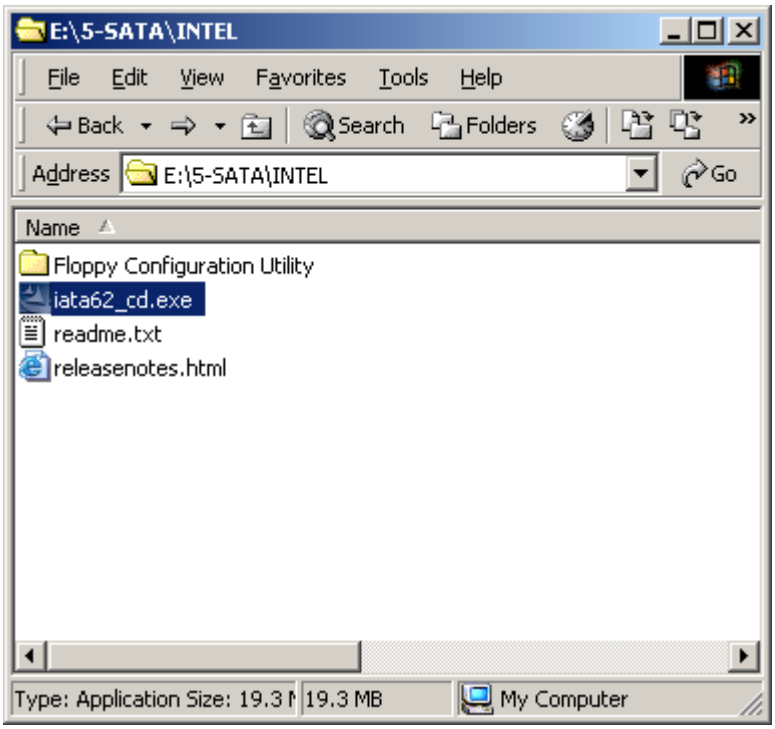


Figure 7-53: SATA RAID Setup Program Icon

Step 5: **Figure 7-54** shows the **InstallShield Wizard** preparing to guide the user through the rest of the process.

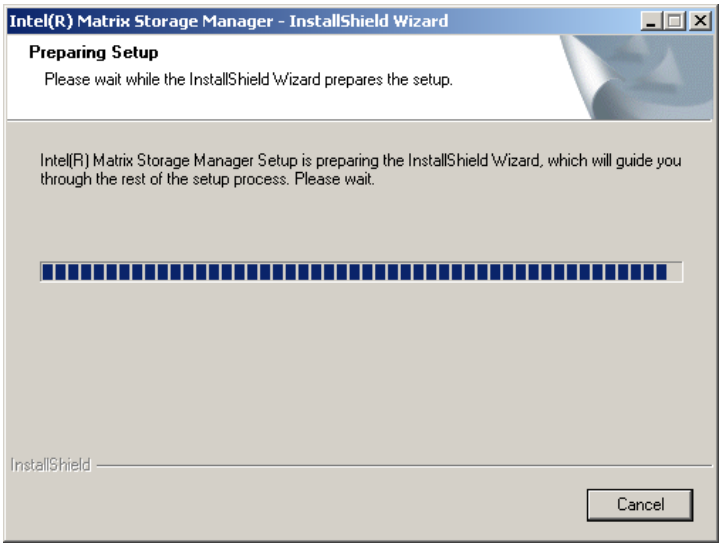

Intel(R) Matrix Storage Manager - InstallShield Wizard
Preparing Setup
Please wait while the InstallShield Wizard prepares the setup.
Intel(R) Matrix Storage Manager Setup is preparing the InstallShield Wizard, which will guide you through the rest of the setup process. Please wait.
InstallShield
Cancel

Figure 7-54: InstallShield Wizard Setup Screen

Step 6: **Figure 7-55** shows the **Matrix Storage Manager** software configuring the installation process.

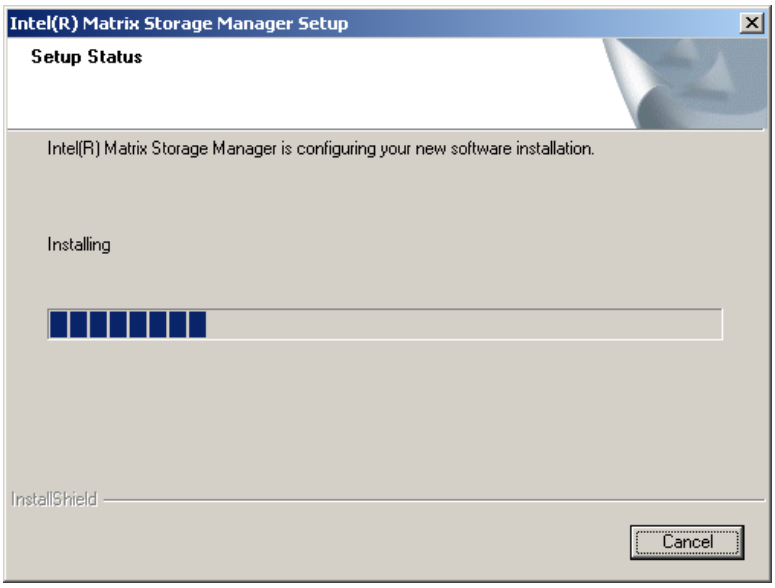


Figure 7-55: Matrix Storage Manager Setup Screen

Step 7: **Figure 7-56** shows the **Matrix Storage Manager** welcome screen.

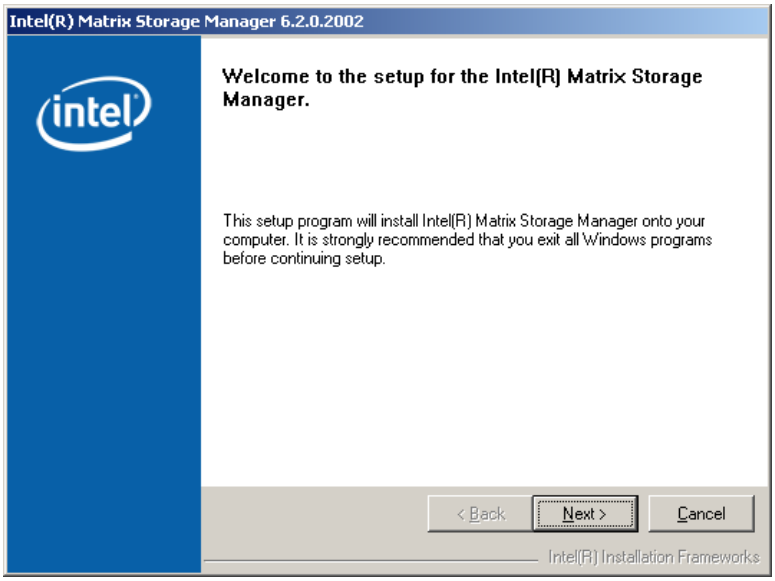

Intel(R) Matrix Storage Manager 6.2.0.2002
intel
Welcome to the setup for the Intel(R) Matrix Storage Manager.
This setup program will install Intel(R) Matrix Storage Manager onto your computer. It is strongly recommended that you exit all Windows programs before continuing setup.
< Back
Next >
Cancel
Intel(R) Installation Frameworks

Figure 7-56: Matrix Storage Manager Welcome Screen

Step 8: Click **NEXT** and a warning appears (**Figure 7-57**). Read the warning carefully

and decide whether or not to continue the installation process.

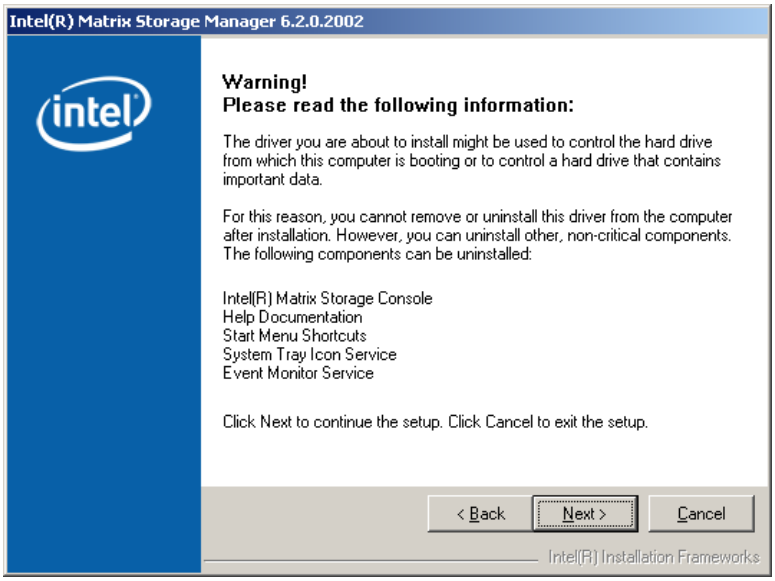

Intel(R) Matrix Storage Manager 6.2.0.2002
Warning!
Please read the following information:
The driver you are about to install might be used to control the hard drive from which this computer is booting or to control a hard drive that contains important data.
For this reason, you cannot remove or uninstall this driver from the computer after installation. However, you can uninstall other, non-critical components. The following components can be uninstalled:
Intel(R) Matrix Storage Console
Help Documentation
Start Menu Shortcuts
System Tray Icon Service
Event Monitor Service
Click Next to continue the setup. Click Cancel to exit the setup.
< Back
Next >
Cancel
Intel(R) Installation Frameworks

Figure 7-57: Matrix Storage Manager Warning Screen

Step 9: Click **NEXT** and a license agreement appears (**Figure 7-58**).

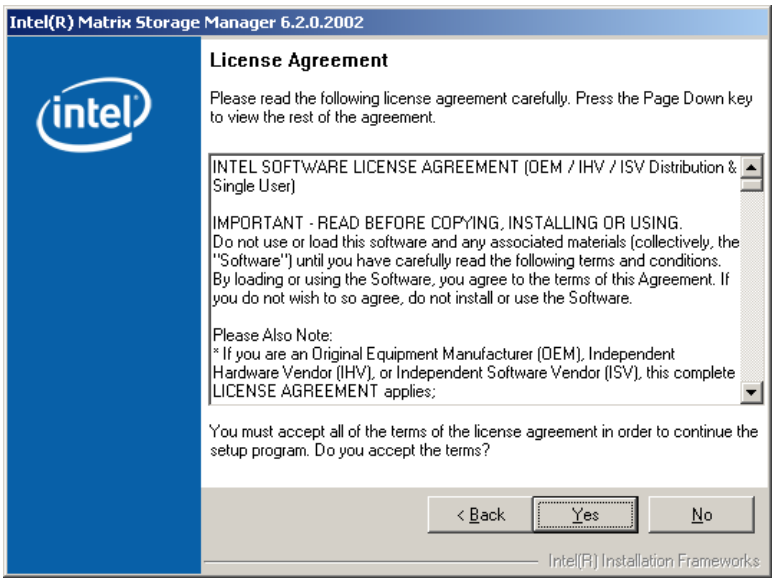

Intel(R) Matrix Storage Manager 6.2.0.2002
License Agreement
Please read the following license agreement carefully. Press the Page Down key to view the rest of the agreement.
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
< Back
Yes
No
Intel(R) Installation Frameworks

Figure 7-58: Matrix Storage Manager License Agreement

Step 10: Read the license agreement. To accept the terms and conditions stipulated in the license agreement shown, click **YES** and the Readme information file shown in **Figure 7-59** appears.

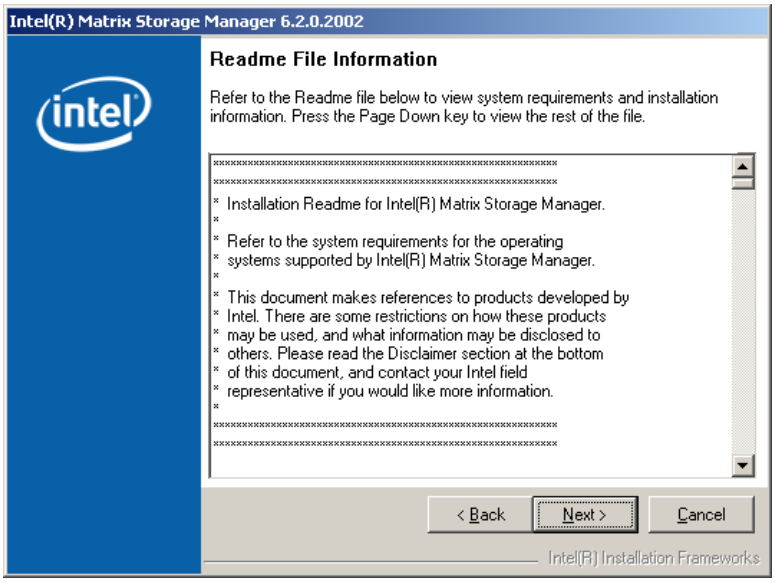

Intel(R) Matrix Storage Manager 6.2.0.2002
Readme File Information
Refer to the Readme file below to view system requirements and installation information. Press the Page Down key to view the rest of the file.
* Installation Readme for Intel(R) Matrix Storage Manager.
* Refer to the system requirements for the operating
* systems supported by Intel(R) Matrix Storage Manager.
* This document makes references to products developed by
* Intel. There are some restrictions on how these products
* may be used, and what information may be disclosed to
* others. Please read the Disclaimer section at the bottom
* of this document, and contact your Intel field
* representative if you would like more information.
< Back
Next >
Cancel
Intel(R) Installation Frameworks

Figure 7-59: Matrix Storage Manager Readme File

Step 11: Read the Readme file information and click **NEXT**.

Step 12: After the driver installation process is complete, a confirmation screen appears (**Figure 7-60**).

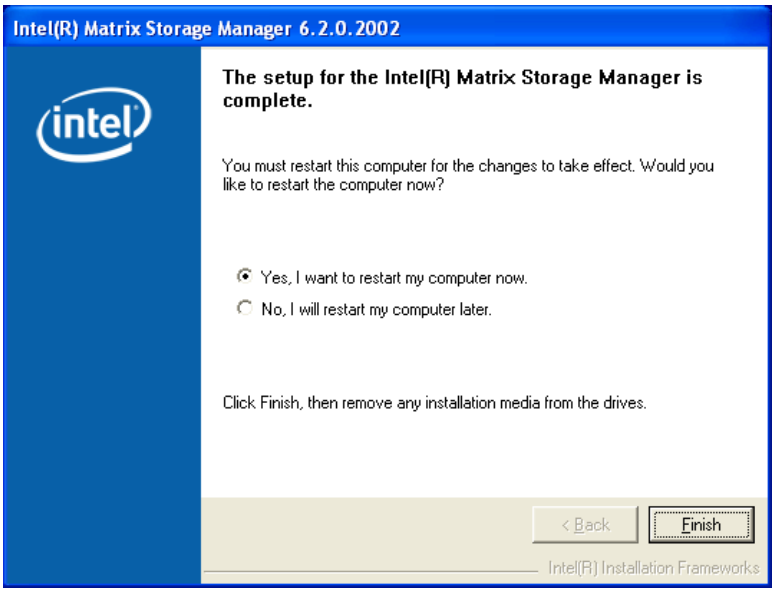

Intel(R) Matrix Storage Manager 6.2.0.2002
The setup for the Intel(R) Matrix Storage Manager is complete.
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart my computer now.
No, I will restart my computer later.
Click Finish, then remove any installation media from the drives.
< Back
Finish
Intel(R) Installation Frameworks

Figure 7-60: Matrix Storage Manager Setup Complete

Step 13: The confirmation screen offers the option of restarting the computer now or later.

For the settings to take effect, the computer must be restarted. Click **FINISH** to restart the computer.

7.9 Intel® Active Management Technology Driver Installation

To install the Intel® Active Management Technology (IAMT) driver, please follow the steps below:

Step 1: Select **iAMT and Utilities** from the list in **Figure 7-2**.

Step 2: The screen in **Figure 7-61** appears.

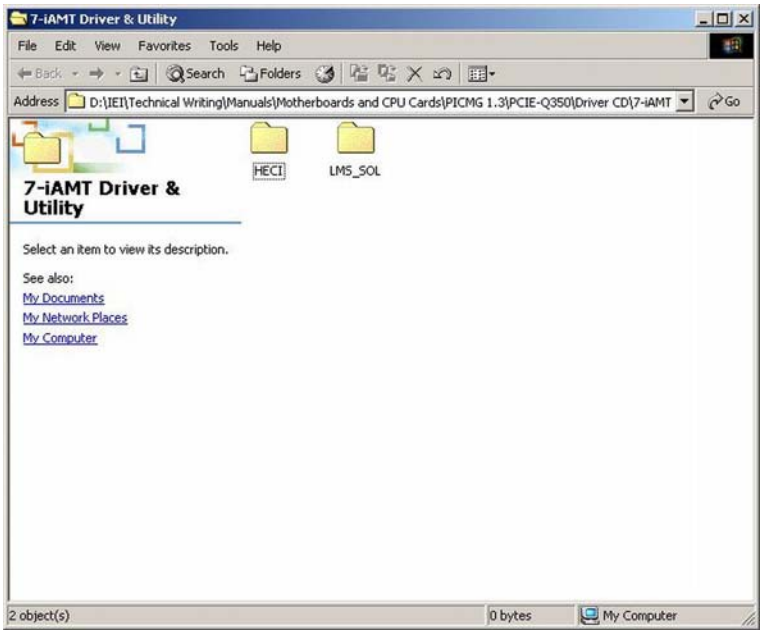


Figure 7-61: IAMT Driver Directory

Step 3: Click on the LMS_SOL directory icon. The window in **Figure 7-62** appears.

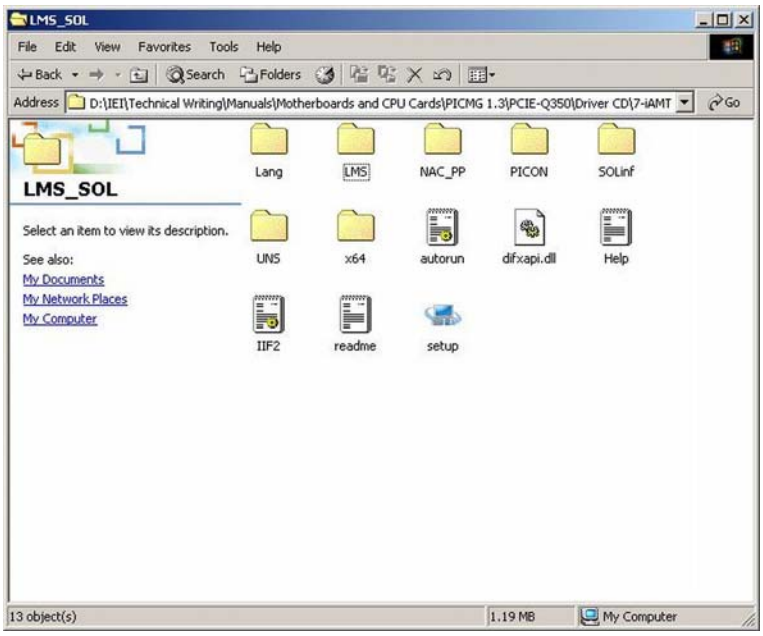


Figure 7-62: IAMT Driver Installation Icon

Step 4: Double click the setup icon in **Figure 7-62**.

Step 5: The window in **Figure 7-63** appears.

Intel® Active Management Technology
Intel® Active Management Technology
intel
Welcome to the Setup Program
This setup program will install Intel® Active Management Technology onto this computer. It is strongly recommended that you exit all programs before continuing.
Click Next to continue.
< Back
Next >
Cancel
Intel® Installation Framework

Figure 7-63: IAMT Welcome Screen

Step 6: Click **NEXT** to continue. The **License Agreement** in **Figure 7-64** appears.

Intel® Active Management Technology
Intel® Active Management Technology
License Agreement
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework

Figure 7-64: IAMT License Agreement

Step 7: Agree to the terms and conditions in the license agreement by clicking **YES**.

Step 8: The **IAMT Readme** file in **Figure 7-65** appears

Intel® Active Management Technology
Intel® Active Management Technology
Readme File Information
Refer to the Readme file below to view the system requirements and installation information.
****
* Copyright 2006, 2007 Intel Corporation
* Intel(R) Active Management Technology Local Manageability Service
* Serial Over LAN
****
Intel(R) Active Management Technology Local Management Service Allows applications to access the local
< Back
Next >
Cancel
Intel® Installation Framework

Figure 7-65: IAMT Readme File

Step 9: Click **NEXT** to continue.

Step 10: Setup operations are performed. See **Figure 7-66**.

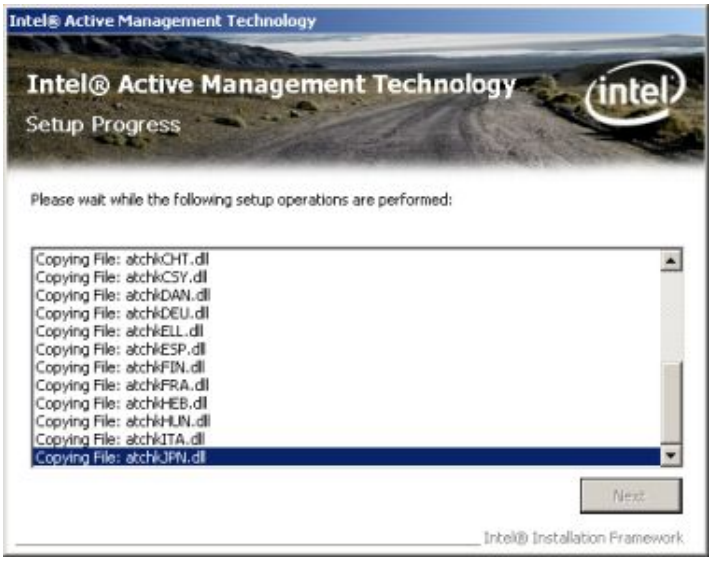


Figure 7-66: IAMT Setup Operations

Step 11: When the Setup Operations in **Figure 7-66** are complete, the window in **Figure 7-67** appears.

Intel® Active Management Technology
Intel® Active Management Technology
Setup Is Complete
The setup program successfully installed Intel® Active Management Technology onto this computer. Click Finish to complete the setup process.
Finish
Intel® Installation Framework

Figure 7-67: Completed Installation

Step 12: Click **FINISH** to complete the IAMT installation.

Step 13: Go back to **iAMT and Utilities** directory (**Figure 7-68**).

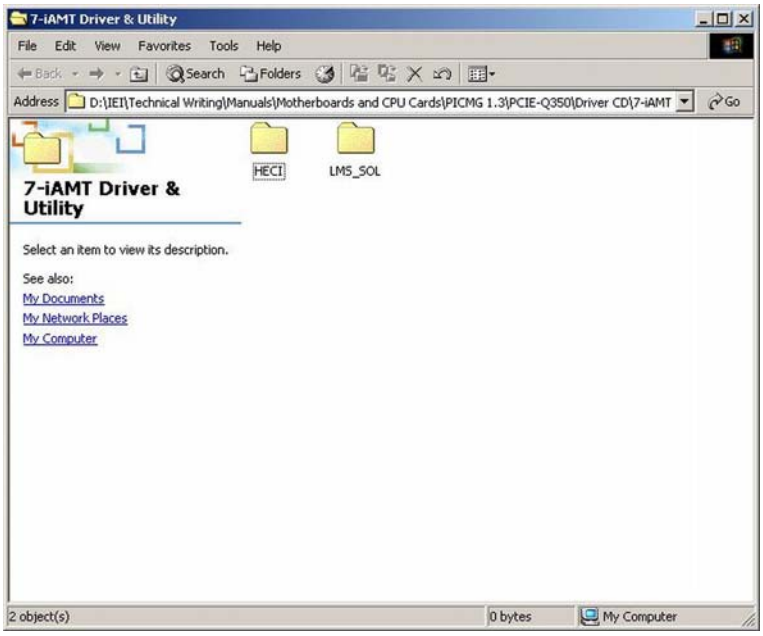


Figure 7-68: IAMT Driver Directory

Step 14: Click on the HECI directory icon. The window in **Figure 7-69** appears.

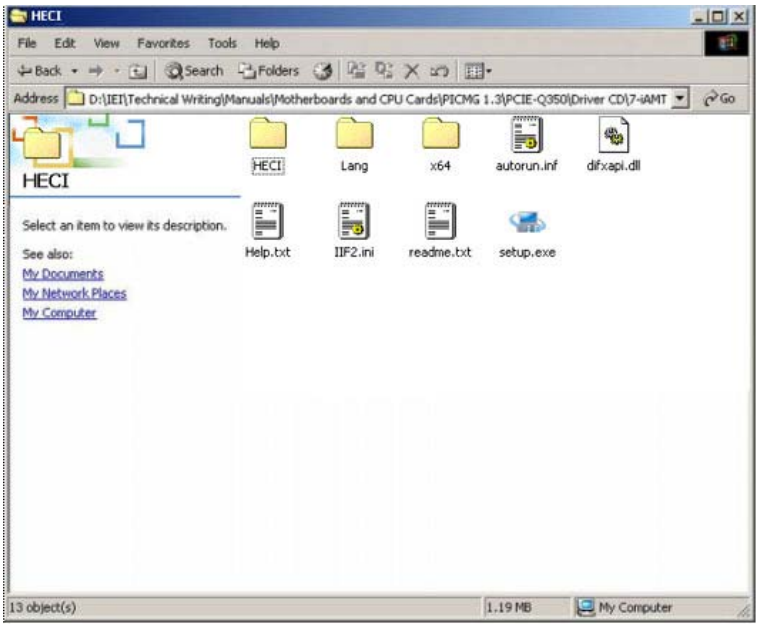


Figure 7-69: HECI Driver Installation Icon

Step 15: Double click the setup icon in **Figure 7-69**.

Step 16: Follow the step-by-step installation process to install the HECI driver.

Chapter

8

Intel® AMT Configuration

8.1 Intel® AMT Setup Procedure

The KINO-9652 is featured with the Intel® Active Management Technology (AMT) 2.5. To enable the Intel® AMT function, follow the steps below.

Step 1: Make sure the DIMM**1** socket is installed with one DDR2 DIMM.

Step 2: Connect an Ethernet cable to the RJ-45 connector labeled **LAN2_USB2**.

Step 3: The AMI BIOS options regarding the Intel® ME or Intel® AMT must be enabled, including:

- Intel® AMT Configuration [Advanced] (see **Section 6.3.5**)
- ME Subsystem Configuration [Chipset] (see **Section 6.7.3**)

Step 4: Configure the Intel® Management Engine BIOS extension (MEBx) (see **Section 8.2** below)

Step 5: Properly install the Intel® AMT drives. Make sure to install both HECI and LMS_SOL drivers from the iAMT Driver & Utility directory in the driver CD (see **Section 7.9**).

Step 6: The following dialog window is displayed after the OS is loaded to show the Intel® AMT status on the KINO-9652 is enabled.

Intel® Active Management Technology Status
Intel® Active Management Technology (Intel® AMT) status on this computer is: enabled.
To enable or disable Intel® AMT, contact your authorized system administrator.
For more information about Intel® AMT, click here.
OK

Figure 8-1: Intel® Active Management Technology Status Dialog

8.2 Intel® Management Engine BIOS Extension

This section describes the essential steps for using the Intel® Management Engine BIOS extension (MEBx).

Step 1: A screen prompts the user to press <Ctrl+P> after a single beep during boot-up process. To get into the Intel® MEBx settings, press <**Ctrl+P**>.

Step 2: Enter the Intel® current ME password as it requires (**Figure 8-2**). Enter the IEI factory ME password: **Abab12!@** (the Intel® default password is **admin**).

NOTE:

The default Intel® ME password is **admin**. The IEI has reset the password to **Abab12!@** in quality control process. After clearing the CMOS, the ME password bound to Intel® default password (admin). Use Intel® default password to enter the Intel® ME BIOS and change the password (refer to **Step 3** below) to be able to configure the Intel® AMT and ME options.

Figure 8-2: Intel® Current ME Password

Step 3: To change the password, select **Change Intel® ME Password**. Enter a new password following the strong password rule (containing at least one upper case letter, one lower case letter, one digit and one special character, and be at least eight characters). (**Figure 8-3**)

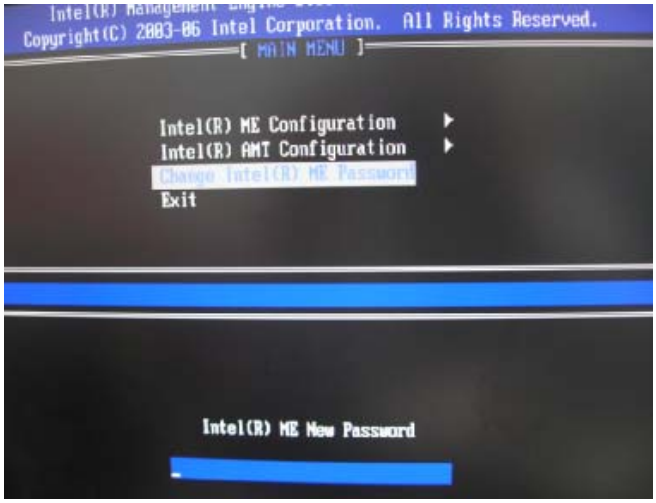


Figure 8-3: Change Intel® ME Password

Step 4: Verify the new password by entering again (**Figure 8-4**).

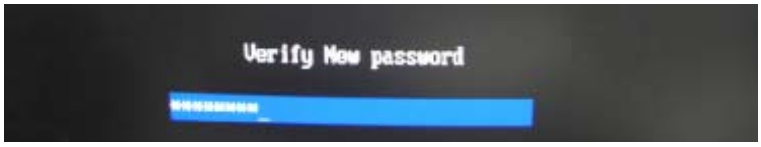


Figure 8-4: Verify New Password

Step 5: Select **Intel® AMT Configuration** and press **Enter** (**Figure 8-5**).

Figure 8-5: Intel® AMT Configuration

Step 6: Select **Provision Model** and press **Enter**. (**Figure 8-6**)

Figure 8-6: Provision Model

Step 7: When the screen in **Figure 8-7** prompts, enter **N** and press **Enter**.

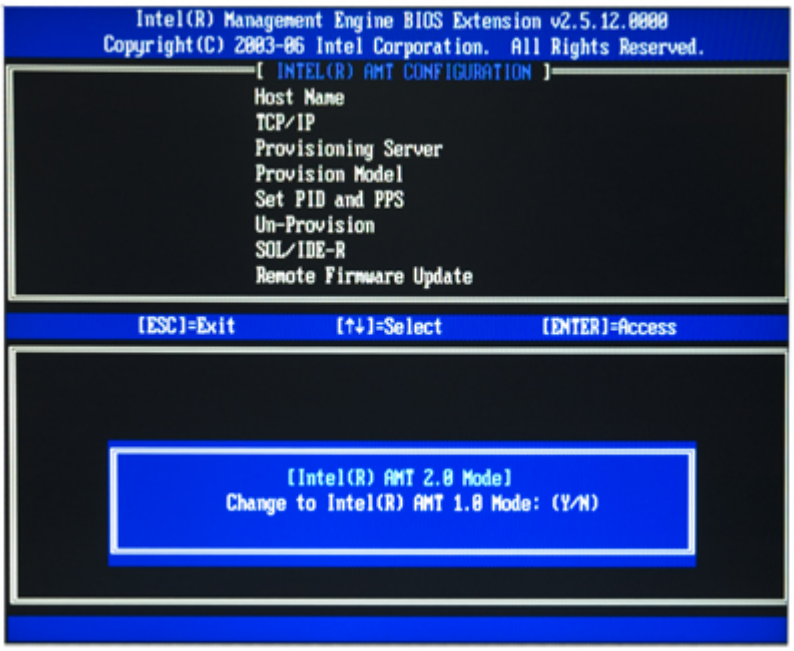


Figure 8-7: Intel® AMT 2.0 Mode

Step 8: A message prompts to confirm to Change to Small Business (**Figure 8-8**). Enter **Y** and press **Enter**.

Figure 8-8: Enterprise

Step 9: Select TCP/IP (in Intel AMT Configuration) and press **Enter**. A message prompts for disabling network interface. Enter **N** to enable network interface.

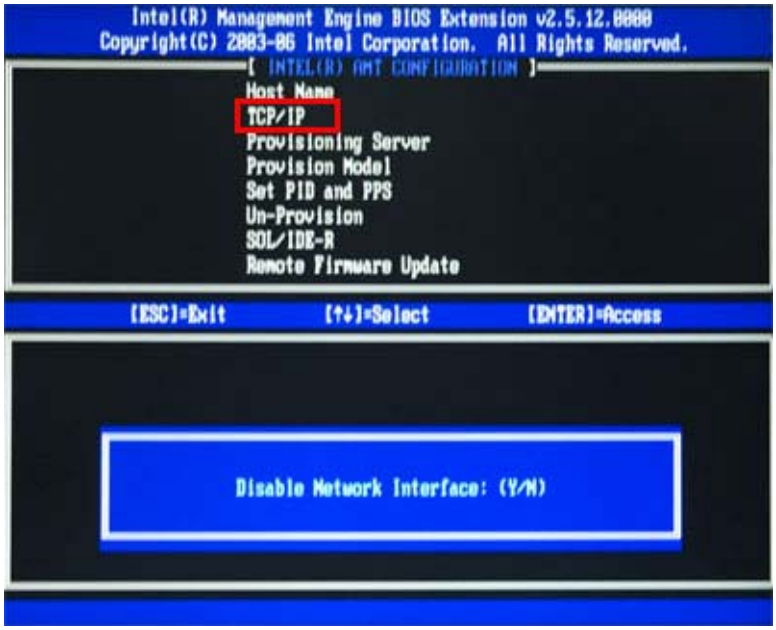


Figure 8-9: Enable Network Interface

Step 10: Enable or disable DHCP. DHCP is enabled by default. If DHCP is disabled, enter the following TCP/IP settings:

- Static TCP/IP address (the static TCP/IP address and Intel® AMI Host Name must be different from those configured in the operating system)
- Subnet mask
- Default Gateway address (optional)
- Preferred Domain Naming Services (DNS) serer address (optional)
- Alternate DNS server address (optional)
- Domain name (optional)

Step 11: Make other necessary settings in the Intel® MEBx depending on users' need.

Step 12: To exit the Intel® MEBx, return to the main menu and select **Exit**. (**Figure 8-10**)

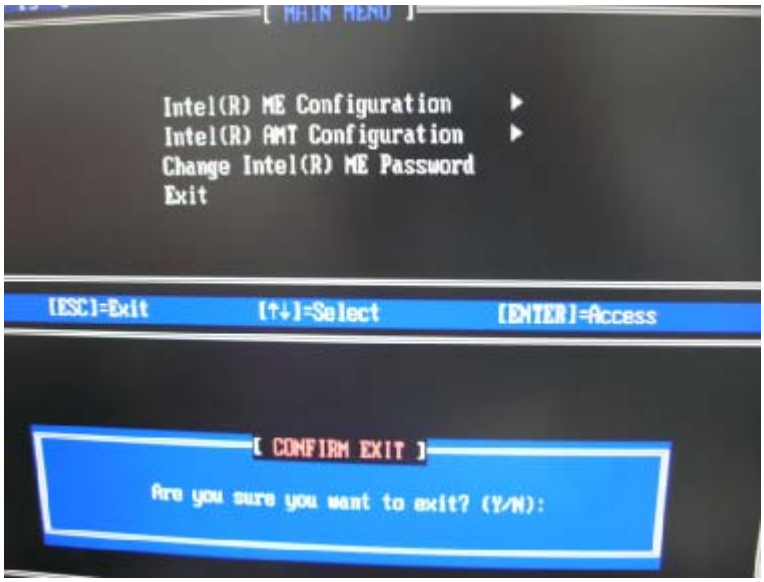


Figure 8-10: Exit

8.3 Using the Intel® AMT Web Interface

NOTE:

Prior to use the Intel® AMT web interface, please make sure the Intel® AMT drivers are properly installed in the KINO-9652 and the Intel® AMT enabled confirmation dialog window displays after boot-up.

To access an Intel® AMT client system from a remote console, follow the steps below.

Step 1: Obtain the IP address of the client system.

Step 2: On the remote management console, open a web browser.

Step 3: If DHCP is enabled in the TCP/IP menu of the Intel® ME BIOS (**Section 8.2**, **Step 10**), get the client system IP address in the MS DOS. Enter the client system IP address and the port number in the web browser:

http://*ip_address*:16992 Example: http://192.168.1.7:16992 (**Figure 8-11**)

Or simply enter the defined host name: http://*host_name*:16992

Example: http://AMTsystem:16992

Figure 8-11: Intel® AMT Web Address

Step 4: If a static IP address is defined for the Intel® AMT client system, enter the defined client system IP address and the port number in the web browser.

Step 5: A login window prompts (**Figure 8-12**).

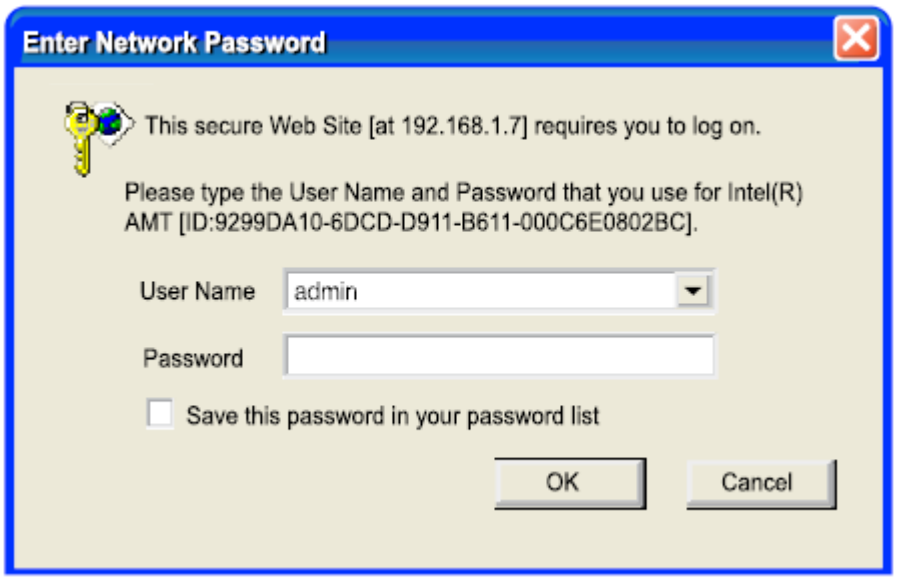

Enter Network Password
This secure Web Site [at 192.168.1.7] requires you to log on.
Please type the User Name and Password that you use for Intel(R) AMT [ID:9299DA10-6DCD-D911-B611-000C6E0802BC].
User Name
admin
Password
Save this password in your password list
OK
Cancel

Figure 8-12: Intel® AMT Web Login Dialog

Step 6: Enter **admin** as the user name (**Figure 8-12**).

Step 7: Enter the password changed in the Intel® MEBx configuration (**Section 8.2**, **Step 3**). If the password remained as default, enter Abab12!@

Step 8: Press **OK** and the Intel® AMT web interface appears (**Figure 8-13**).

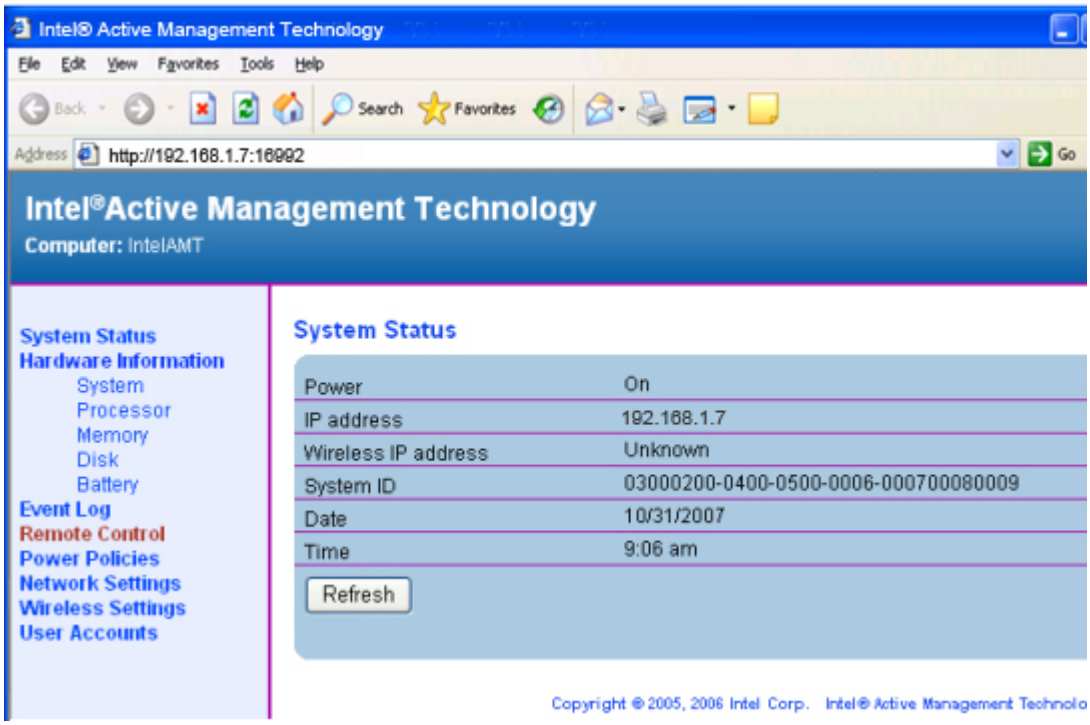


Figure 8-13: Intel® AMT Web Interface

NOTE:

To enhance the platform manageability of the KINO-9652, work with the Independent Software Vendors (ISV) to implement the Intel® AMT management utility on the system.

Appendix

A

BIOS Configuration Options

A.1 BIOS Configuration Options

Below is a list of BIOS configuration options described in **Chapter 6**.

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Appendix

B

Terminology

AC ’97	Audio Codec 97 (AC’97) refers to a codec standard developed by Intel® in 1997.
ACPI	Advanced Configuration and Power Interface (ACPI) is an OS-directed configuration, power management, and thermal management interface.
AHCI	Advanced Host Controller Interface (AHCI) is a SATA Host controller register-level interface.
ATA	The Advanced Technology Attachment (ATA) interface connects storage devices including hard disks and CD-ROM drives to a computer.
APM	The Advanced Power Management (APM) application program interface (API) enables the inclusion of power management in the BIOS.
ARMD	An ATAPI Removable Media Device (ARMD) is any ATAPI device that supports removable media, besides CD and DVD drives.
ASKIR	Amplitude Shift Keyed Infrared (ASKIR) is a form of modulation that represents a digital signal by varying the amplitude (“volume”) of the signal. A low amplitude signal represents a binary 0, while a high amplitude signal represents a binary 1.
BIOS	The Basic Input/Output System (BIOS) is firmware that is first run when the computer is turned on and can be configured by the end user
CODEC	The Compressor-Decompressor (CODEC) encodes and decodes digital audio data on the system.
CompactFlash®	CompactFlash® is a solid-state storage device. CompactFlash® devices use flash memory in a standard size enclosure. Type II is thicker than Type I, but a Type II slot can support both types.
CMOS	Complimentary metal-oxide-conductor is an integrated circuit used in chips like static RAM and microprocessors.

COM	COM refers to serial ports. Serial ports offer serial communication to expansion devices. The serial port on a personal computer is usually a male DB-9 connector.
DAC	The Digital-to-Analog Converter (DAC) converts digital signals to analog signals.
DDR	Double Data Rate refers to a data bus transferring data on both the rising and falling edges of the clock signal.
DMA	Direct Memory Access (DMA) enables some peripheral devices to bypass the system processor and communicate directly with the system memory.
DIMM	Dual Inline Memory Modules are a type of RAM that offer a 64-bit data bus and have separate electrical contacts on each side of the module.
DIO	The digital inputs and digital outputs are general control signals that control the on/off circuit of external devices or TTL devices. Data can be read or written to the selected address to enable the DIO functions.
EHCI	The Enhanced Host Controller Interface (EHCI) specification is a register-level interface description for USB 2.0 Host Controllers.
FSB	The Front Side Bus (FSB) is the bi-directional communication channel between the processor and the Northbridge chipset.
GbE	Gigabit Ethernet (GbE) is an Ethernet version that transfers data at 1.0 Gbps and complies with the IEEE 802.3-2005 standard.
GPIO	General purpose input
HDD	Hard disk drive (HDD) is a type of magnetic, non-volatile computer storage device that stores digitally encoded data.
ICH	The Input/Ouput Controll Hub (ICH) is an Intel® Southbridge chipset.
IrDA	Infrared Data Association (IrDA) specify infrared data transmission

	protocols used to enable electronic devices to wirelessly communicate with each other.
L1 Cache	The Level 1 Cache (L1 Cache) is a small memory cache built into the system processor.
L2 Cache	The Level 2 Cache (L2 Cache) is an external processor memory cache.
LCD	Liquid crystal display (LCD) is a flat, low-power display device that consists of two polarizing plates with a liquid crystal panel in between.
LVDS	Low-voltage differential signaling (LVDS) is a dual-wire, high-speed differential electrical signaling system commonly used to connect LCD displays to a computer.
MAC	The Media Access Control (MAC) protocol enables several terminals or network nodes to communicate in a LAN, or other multipoint networks.
PCIe	PCI Express (PCIe) is a communications bus that uses dual data lines for full-duplex (two-way) serial (point-to-point) communications between the SBC components and/or expansion cards and the SBC chipsets. Each line has a 2.5 Gbps data transmission rate and a 250 MBps sustained data transfer rate.
POST	The Power-on Self Test (POST) is the pre-boot actions the system performs when the system is turned-on.
RAM	Random Access Memory (RAM) is volatile memory that loses data when power is lost. RAM has very fast data transfer rates compared to other storage like hard drives.
SATA	Serial ATA (SATA) is a serial communications bus designed for data transfers between storage devices and the computer chipsets. The SATA bus has transfer speeds up to 1.5 Gbps and the SATA II bus has data transfer speeds of up to 3.0 Gbps.
S.M.A.R.T	Self Monitoring Analysis and Reporting Technology (S.M.A.R.T) refers

	to automatic status checking technology implemented on hard disk drives.
UART	Universal Asynchronous Receiver-transmitter (UART) is responsible for asynchronous communications on the system and manages the system's serial communication (COM) ports.
UHCI	The Universal Host Controller Interface (UHCI) specification is a register-level interface description for USB 1.1 Host Controllers.
USB	The Universal Serial Bus (USB) is an external bus standard for interfacing devices. USB 1.1 supports 12Mbps data transfer rates, while USB 2.0 supports 480Mbps data transfer rates.
VGA	The Video Graphics Array (VGA) is a graphics display system developed by IBM.

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Appendix

C

DIO Interface

C.1 DIO Interface Introduction

The DIO connector on the KINO-9652 is interfaced to GPIO ports on the IT8712F Super I/O chipset. The DIO has both 4-bit digital inputs and 4-bit digital outputs. The digital inputs and digital outputs are generally control signals that control the on/off circuit of external devices or TTL devices. Data can be read or written to the selected address to enable the DIO functions.

NOTE:

For further information, please refer to the datasheet for the IT8712F Super I/O chipset.

C.2 DIO Connector Pinouts

The following table describes how the DIO connector pins are connected to the Super I/O GPIO port 1.

Pin	Description	Super I/O Pin	Super I/O Pin Description
1	Ground	N/A	N/A
2	VCC	N/A	N/A
3	Output 3	GP27	General purpose I/O port 2 bit 7.
4	Output 2	GP26	General purpose I/O port 2 bit 6.
5	Output 1	GP25	General purpose I/O port 2 bit 5.
6	Output 0	GP24	General purpose I/O port 2 bit 4.
7	Input 3	GP23	General purpose I/O port 2 bit 3.
8	Input 2	GP22	General purpose I/O port 2 bit 2
9	Input 1	GP21	General purpose I/O port 2 bit 1
10	Input 0	GP20	General purpose I/O port 2 bit 0

C.3 Assembly Language Samples

C.3.1 Enable the DIO Input Function

The BIOS interrupt call INT 15H controls the digital I/O. An assembly program to enable digital I/O input functions is listed below.

```
MOV     AX, 6F08H       Sets the digital port as input
INT     15H             Initiates the INT 15H BIOS call
```

C.3.2 Enable the DIO Output Function

The BIOS interrupt call INT 15H controls the digital I/O. An assembly program to enable digital I/O output functions is listed below.

```
MOV     AX, 6F09H       Sets the digital port as output
MOV     BL, 09H
INT     15H             Initiates the INT 15H BIOS call
```

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Appendix

D

Watchdog Timer

NOTE:

The following discussion applies to DOS environment. IEI support is contacted or the IEI website visited for specific drivers for more sophisticated operating systems, e.g., Windows and Linux.

The Watchdog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMI or a software bug. When the CPU stops working correctly, Watchdog Timer either performs a hardware reset (cold boot) or a Non-Maskable Interrupt (NMI) to bring the system back to a known state.

A BIOS function call (INT 15H) is used to control the Watchdog Timer:

INT 15H:

AH – 6FH Sub-function:	
AL – 2:	Sets the Watchdog Timer's period.
BL:	Time-out value (Its unit-second is dependent on the item "Watchdog Timer unit select" in CMOS setup).

Table D-1: AH-6FH Sub-function

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer starts counting down. While the timer value reaches zero, the system resets. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the Watchdog timer is disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

NOTE:

When exiting a program it is necessary to disable the Watchdog Timer, otherwise the system resets.

Example program:

```
; INITIAL TIMER PERIOD COUNTER
;
W_LOOP:

        MOV     AX, 6F02H       ;setting the time-out value
        MOV     BL, 30          ;time-out value is 48 seconds
        INT      15H
 ;
; ADD THE APPLICATION PROGRAM HERE
;
        CMP      EXIT_AP, 1     ;is the application over?
        JNE      W_LOOP         ;No, restart the application

        MOV     AX, 6F02H       ;disable Watchdog Timer
        MOV     BL, 0           ;
        INT      15H
;
; EXIT ;
```

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Appendix

E

Address Mapping

E.1 IO Address Map

I/O address Range	Description
000-01F	DMA Controller
020-021	Interrupt Controller
040-043	System time
060-06F	Keyboard Controller
070-07F	System CMOS/Real time Clock
080-09F	DMA Controller
0A0-0A1	Interrupt Controller
0C0-0DF	DMA Controller
0F0-0FF	Numeric data processor
1F0-1F7	Primary IDE Channel
2E8-2EF	Serial Port 4 (COM4)
2F8-2FF	Serial Port 2 (COM2)
378-37F	Parallel Printer Port 1 (LPT1)
3B0-3BB	Intel GM965 Graphics Controller
3C0-3DF	Intel GM965 Graphics Controller
3E8-3EF	Serial Port 3 (COM3)
3F6-3F6	Primary IDE Channel
3F7-3F7	Standard floppy disk controller
3F8-3FF	Serial Port 1 (COM1)

Table E-1: IO Address Map

E.2 1st MB Memory Address Map

Memory address	Description
00000-9FFFF	System memory
A0000-BFFFF	VGA buffer
F0000-FFFFF	System BIOS
1000000-	Extend BIOS

Table E-2: 1st MB Memory Address Map

E.3 IRQ Mapping Table

IRQ	Description	IRQ	Description
IRQ0	System Timer	IRQ8	RTC clock
IRQ1	Keyboard	IRQ9	ACPI
IRQ2	Available	IRQ10	COM 4
IRQ3	COM2	IRQ11	COM 3
IRQ4	COM1	IRQ12	PS/2 mouse
IRQ5	SMBus Controller	IRQ13	FPU
IRQ6	FDC	IRQ14	Primary IDE
IRQ7	Parallel port	IRQ15	Secondary IDE

Table E-3: IRQ Mapping Table

E.4 DMA Channel Assignments

Channel	Function
0	Available
1	Available
2	Floppy disk (8-bit transfer)
3	Available
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

Table E-4: DMA Channel Assignments

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Appendix

F

Compatibility

NOTE:

The compatible items described here have been tested by the IEI R&D team and found to be compatible with the KINO-9652.

F.1 Compatible Processors

The following Socket 478 processors have been successfully tested on the KINO-9652.

CPU	Model Number	Frequency	FSB
Intel® Core™ Duo	T2600	2.16 GHz	667 MHz
Intel® Core™ Duo	T2500	2.0 GHz	667 MHz
Intel® Core™ Duo	T2400	1.83 GHz	667 MHz
Intel® Core™ Duo	T2300	1.66 GHz	667 MHz
Intel® Core™ Solo	T1300	1.66 GHz	667 MHz
Intel® Core™2 Duo	T7600	2.33 GHz	667 MHz
Intel® Core™2 Duo	T7400	2.16 GHz	667 MHz
Intel® Core™2 Duo	T7200	2.0 GHz	667 MHz
Intel® Core™2 Duo	T5600	1.83 GHz	667 MHz
Intel® Core™2 Duo	T5500	1.66 GHz	667 MHz

F.2 Compatible Memory Modules

NOTE:

The memory modules listed below have been tested on the KINO-9652 other memory modules that comply with the specifications may also work on the KINO-9652 but have not been tested.

The following memory modules have been successfully tested on the KINO-9652.

Manufacturer	Model No.	Capacity	Speed
CORSAIR	VS51MB667D2	512 MB	667 MHz
CORSAIR	VS1GB667D2	1 GB	667 MHz
CORSAIR	VS2GB667D2	2 GB	667 MHz
Kingston	KHX5400D2K2/2G	1 GB	PC2-5400
Kingston	KHX5400D2K2/1G	512 MB	PC2-5400
Kingston	KVR667D2N5/2G	2 G	667 MHz
A-DATA	M2OEL5G3I4170C1C0z667(5)1GX16	1 GB	667 MHz
UNIGEN	UG12T6400L8DU-5AM DDR2-533	1 GB	533 MHz
UNIGEN	UG64T6400L8DU-5AL	512 MB	533 MHz
UNIGEN	UG64T6400L8DU-6AL	512 MB	667 MHz
Transcend	TS128MLQ64V8J DDR2-800	1 GB	800 MHz
Transcend	TS64MLQ64V6J DDR2-667	512 MB	667 MHz
Transcend	TS32MLQ64V6M DDR2-667	256 MB	667 MHz
Twinmos	8D22IB-ED	256 MB	533 MHz
Elixir	M2U51264TU88A0F-37B DDR2-533	512 MB	533 MHz
Apacer	UNB PC4300 CL4	512 MB	533 MHz
KINGSTEK	PC2-4200 1RX16U5R	256 MB	PC2-4200
KINGSTEK	KSTD2PC2-4200 1RUX8U5R	256 MB	PC2-4200

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Appendix

G

Hazardous Materials Disclosure

G.1 Hazardous Material Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	x	O	O	O	O	x
Display	X	O	O	O	O	X
Printed Circuit Board	X	O	O	O	O	X
Metal Fasteners	X	O	O	O	O	O
Cable Assembly	X	O	O	O	O	X
Fan Assembly	X	O	O	O	O	X
Power Supply Assemblies	X	O	O	O	O	X
Battery	O	O	O	O	O	O

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有"环境友好使用期限"的标签，此期限是估算这些物质"不会有泄漏或突变"的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	X	O	O	O	O	X
显示	X	O	O	O	O	X
印刷电路板	X	O	O	O	O	X
金属螺帽	X	O	O	O	O	O
电缆组装	X	O	O	O	O	X
风扇组装	X	O	O	O	O	X
电力供应组装	X	O	O	O	O	X
电池	O	O	O	O	O	O

O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。

Appendix

H

External AC'97 Audio CODEC

H.1 Introduction

The motherboard comes with an onboard Realtek ALC883 CODEC. The ALC883 is a 16-bit, full-duplex AC'97 Rev. 2.3 compatible six-channel audio CODEC that provides three pairs of stereo outputs with 5-bit volume control, a mono output, and multiple stereo and mono inputs, along with flexible mixing, gain, and mute functions.

H.1.1 Accessing the AC'97 CODEC

The CODEC is accessed through the phone jacks on the rear panel of the motherboard. The phone jacks include:

- LINE IN
- LINE OUT
- MIC IN

H.1.2 Driver Installation

The driver installation has been described in **Section 7.7**.

After rebooting, the sound effect configuration utility appears in the **Windows Control Panel** (**Figure H-1**). If the peripheral speakers are properly connected, sound effects should be heard.

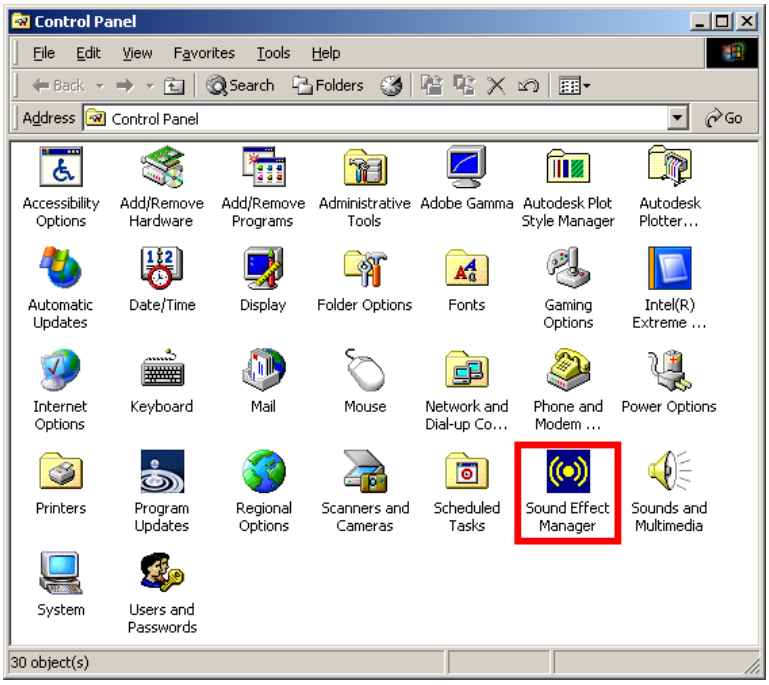

Figure H-1: Control Panel Sound Effect Manager

H.2 Sound Effect Configuration

H.2.1 Accessing the Sound Effects Manager

Follow the steps below to access the **Sound Effect Manager**.

Step 1: Install the ALC883 audio CODEC driver (see **Section 7.7**).

Step 2: Click the **Sound Effect Manager** icon in the system task bar (**Figure H-2**).

Figure H-2: Sound Effect Manager Icon [Task Bar]

Step 3: The sound effect manager appears (**Figure H-3**).

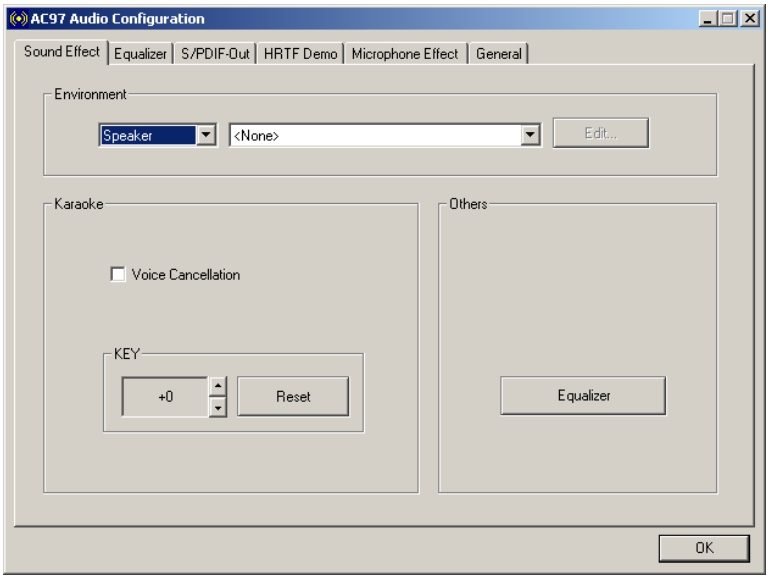

Figure H-3: Sound Effects Manager (ALC883)

NOTE:

The Sound Effect Manager shown in Figure H-3 is for the RealTek ALC883 audio CODEC. Different CODECs may have different sound manager appearances.

The following section describes the different configuration options in the Sound Effect Manager.

H.2.2 Sound Effect Manager Configuration Options

The **Sound Effects Manager** enables configuration of the items listed below. To configure these items click the corresponding menu tab in the **Sound Effects Manager** (**Figure H-3)**.

NOTE:

The Karaoke Mode is configured in the Sound Effect menu. To access Karaoke configuration settings, click on the Sound Effect menu tab.

- Sound Effect
- Karaoke Mode
- Equalizer
- Speaker Configuration
- Speaker Test
- S/PDIF-In
- S/PDIF-Out
- Connector Sensing
- HRTF Demo
- Microphone Effect
- General

NOTE:

Not all RealTek Sound Effect Managers have all the above listed options. The Sound Effect Manager loaded onto the system may only have some of the options listed above.

Below is a brief description of the available configuration options in the **Sound Effects Manager**.

- ***Sound Effect*** - Select a sound effect from the 23 listed options in the drop down menu. Selected sound effect properties can be edited. Click **EDIT** to edit the sound effect.
- ***Karaoke Mode*** - **Karaoke Mode** is accessed in the Sound Effect tab. The **Voice Cancellation** disables the vocal part of the music being played. The

Key adjustment up or down arrow icons enable users to define a key that fits a certain vocal range.

- ***Equalizer Selection*** - Preset equalizer settings enable easy audio range settings. Ten frequency bands can be configured.
- ***Speaker Configuration*** - Multi-channel speaker settings are configured in this menu. Configurable options include:
  - Headphone
  - Channel mode for stereo speaker output
  - Channel mode for 4 speaker output
  - Channel mode for 5.1 speaker output
  - Synchronize the phonejack switch with speakers settings
- ***Speaker Test*** - Each speaker connected to the system is tested individually to see if the 4-channel or 6-channel audio operates properly.
- ***S/PDIF-In & S/PDIF-Out*** - S/PDIF is used to transmit digital and analog audio signals with either a 48 or 44.1kHz sample rate.
- ***HRTF Demo*** - Adjust HRTF (Head Related Transfer Functions) 3D positional audio before running 3D applications.
- ***Microphone Effect*** - Microphone noise suppression is enabled in this menu.
- ***General*** - General information about the installed AC'97 audio configuration utility is listed here.

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